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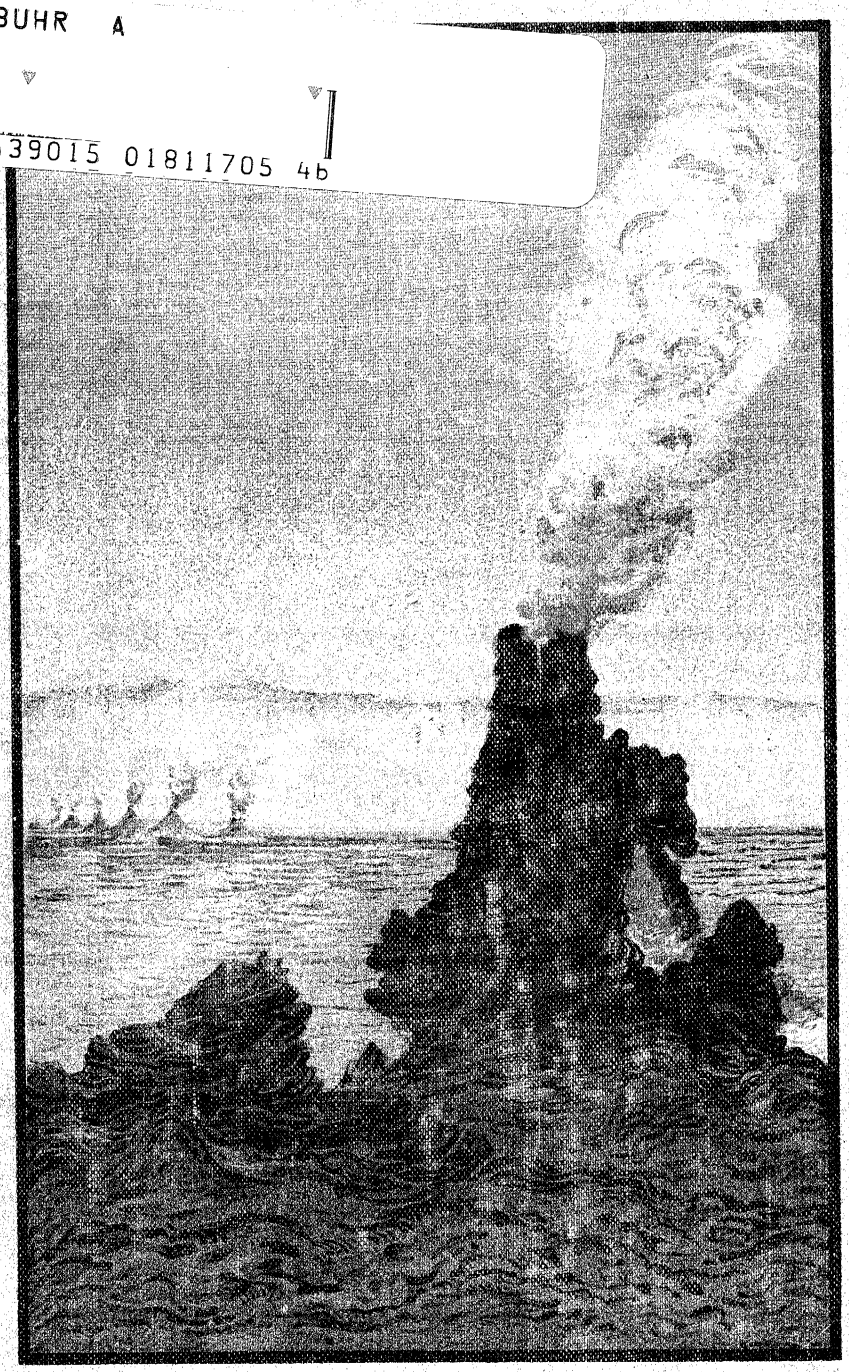

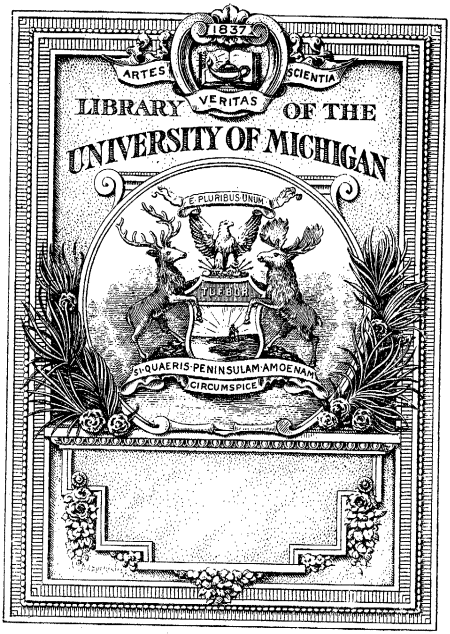
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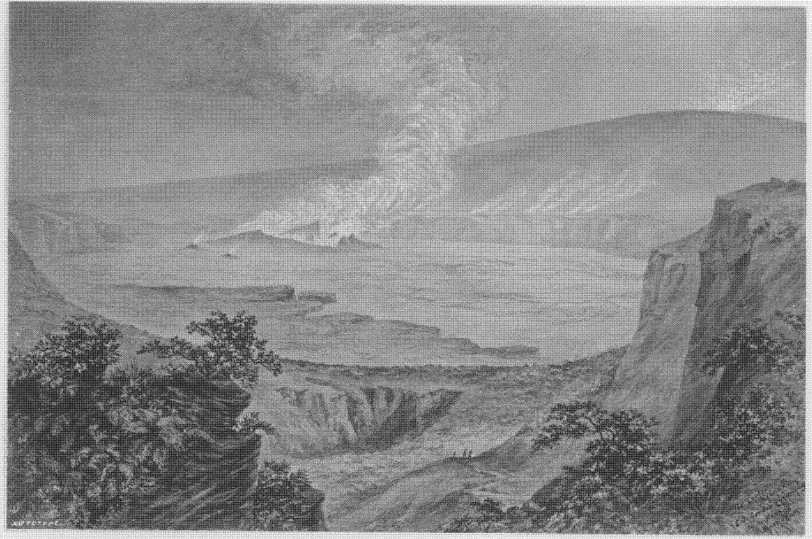

MAUNA LOA AND CRATER OF KILAUEA, ON HAWAII.

FIRE FOUNTAINS

THE

KINGDOM OF HAWAII

ITS VOLCANOES, AND THE HISTORY OF ITS MISSIONS

BY

C. F. GORDON-CUMMING

AUTHOR OF 'A LADY'S CRUISE IN A FRENCH MAN-OF-WAR,' 'AT HOME IN FIJI,' ETC.

IN TWO VOLS.—VOL. I.

WITH ILLUSTRATIONS AND MAPS

WILLIAM BLACKWOOD AND SONS
EDINBURGH AND LONDON
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NOTE.

I MUST take this opportunity of expressing to Mr W. T. Brigham my thanks for the sketch-map of Hawaii, which I copied, while on the island, from his very interesting work. I regret that, having failed to find means of communicating with him, I have been unable to ask his permission to reproduce this sketch, but feel confident that my request would not have been refused.

I wish also to express my thanks to Messrs Rivington for having kindly allowed me to make use of their admirable map of the group.

C. F. GORDON CUMMING.

FIRE FOUNTAINS.

INTRODUCTORY.

For years it has been my heart's desire to visit the little Island Kingdom of Hawaii,[1] that isolated group in the North East Pacific, where the thrilling tale of Captain Cook's voyages closed so sadly, and from which, in the first half of the century, Ellis and other enterprising travellers sent home such marvellous accounts of volcanic action—of fountains of living fire and flaming billows—as seemed to their hearers like fairy-tales.

In later years, a long stream of successive visitors have amply confirmed their story, each depicting the ever-changing scene differently from his predecessors, but all alike exhausting the power of language in the endeavour to convey their own impressions of indescribable grandeur.

[1] Or rather Hawaii-Nei, as the Isles collectively are called, Hawaii being merely one of the group.

When, therefore, in the course of a pleasant cruise[1] in the South Pacific, I found myself in beautiful Tahiti, I there lingered for six delightful months, waiting for a vessel which should bring me direct to Hawaii.

That vessel having come to grief, there was no alternative but to take passage to San Francisco by the little mail schooner (160 tons)—a voyage of six weeks, in the course of which we actually managed to sail 6000 miles, which is almost double the direct distance.

By a most singular freak of the trade-winds, we were blown to the west of the Sandwich Isles, and coasted Kauai, the northernmost island, which is supposed also to be the oldest of the group (so geologists infer from the degradation of its purely volcanic hills and cones, and the depth of alluvial deposit in the many craters). It is a circular island about thirty miles in diameter, and is said to be exceedingly fertile. Of this, my casual glimpse from the sea gave me no suggestion. I beheld only a pile of shapeless hills, 8000 feet high, but of the most arid, repellent appearance, notwithstanding that I saw them glorified by a flood of mellow gold, just as the sun rose, cloudless, from the sea, a ball of living light.

[1] A Lady's Cruise in a French Man-of-War. By C. F. Gordon Cumming.

Still more unattractive are the low shores of Niihau, along which we sailed so close that we could distinguish every house. I knew, however, that this island is the property of a Scotch family, who, wishing never to separate, came here *en masse* from New Zealand, bought this island, and settled on it and on Kauai, where they have made for themselves delightful houses, and established great sheep-farms and cattle-ranches, and large sugar-plantations. I knew too, that though unbeautiful when seen from the sea, there are forests and gulches on Kauai of extreme loveliness, and I sorely regretted being carried past it, instead of being put ashore.

In the course of many wanderings, I had already experienced enough of the hospitality of the Colonies, to know that had I landed, the name I bear would have insured a hearty welcome from my countrymen and their mother — a fine old Scotch lady of the best type—on whose hospitality I might safely have counted, till the little interinsular steamer called, to convey me to Honolulu.

But, alas! so rigid are the regulations of the French Government concerning its postal service, that our good Danish captain dared not even send a boat ashore, as he would thereby have broken his mail contract. All he could do was to bid

me be ready, in case we met any vessel or boat bound for the land, in which case he would have trans-shipped me, and so I should have been spared this long sail to San Francisco and back—a most aggravating and useless addition to my travels, and moreover, a serious waste of time.

While waiting at San Francisco for the Pacific mail-steamer which should convey me back to Hawaii—a return voyage of 2000 miles—I was induced to visit the Yo Semité valley; and such was the fascination of its mighty granite crags, that it held me a willing captive for three months —at the end of which it seemed desirable to start without further delay for China and Japan.

From Canton to Pekin—from Nagasaki to the summit of Fuji-Yama,—all was so full of interest, that eighteen months slipped by ere I once more turned my thoughts to Hawaii.

I had been greatly in hopes that I might find some vessel sailing direct from Yokohama to Honolulu, which would have spared me the weariness of again tracing the two long sides of the great triangle, involved in following the regular route of the Pacific mail-steamers,—namely, Yokohama to San Francisco—San Francisco to Honolulu.

For a while there seemed good hope that one of these very steamers would so far deviate from her accustomed course, as General Grant, late President

of the United States—the Wellington of America —was just then completing his triumphal journey round the world, and wished to visit Hawaii ere returning to America. This plan was, however, abandoned.

I can, however, scarcely regret a return voyage which gave me so good an opportunity of seeing at San Francisco one of the most stupendous demonstrations of welcome which could possibly be awarded to any mortal.

It was a curious transition from the grace and elegance of the surpassing hospitalities with which the General and his party were loaded in Japan, to the sort of sledge-hammer earnestness which marked the welcome of California.

In Japan there had been dream-like festivals, illuminated gardens and palaces all decorated in the daintiest manner, with every delicate refinement that the most poetic fancy could devise.

As the great Pacific mail s.s. City of Tokio (5500 tons) steamed out of Yokohama harbour, all the shipping was bedecked with flags, salutes fired, yards manned. One Japanese man-of-war was told off to escort the City for forty miles down the Bay of Yeddo. Then the men formed in pyramids all up the ladders, cheering. A salute was fired, and so we passed away from Japanese waters.

The voyage slipped pleasantly by, on the great

luxurious vessel, where at meals the passengers were told off into companies of ten, forming separate dinner-parties. I found myself at "the Commodore's" table, with the General's party; and three weeks of constant most friendly intercourse, gave me quite a personal interest in the extraordinary welcome which awaited him in San Francisco.

This commenced ere we reached the Golden Gates, when a steamer brought the municipal and military authorities to receive him. Two huge steamers, each with 3000 persons on deck, all cheering vociferously and waving handkerchiefs, also came out to escort the City of Tokio up the harbour. From this point there was a succession of crowded steamers, yachts and vessels of every description, all with flags, and crowded with cheering people.

One diabolical steamer played a caliope, an atrocious sort of steam-organ, which even the California papers described as "devil's music." All blew horrible steam-whistles as their mode of expressing welcome; but the whole pandemonium was out-noised by the deafening thunder of artillery. Big guns roared from every fort; and as these line every green headland on either side of the great harbour, they never ceased giving tongue during the three hours of our slow progress.

Volley after volley reverberated among the hills, and the clouds of smoke were lighted up with golden light from a gorgeous sunset behind us—truly "golden gates."

The city ahead of us was also clear in the soft evening light; but this had died away ere we reached our anchoring-ground. All along the shores every pier, wharf, hill, or building, from which a glimpse of the ship could be obtained, was black with the dense throng of spectators, all cheering, as if they could not cheer enough.

In the city, the streets along which the General was to pass were all illuminated and hung with *millions* of flags—all stars and stripes—gigantic flags draping the streets, or festoons of little flags hanging across and across. We missed the grace and variety of Japanese decoration, but were greatly struck by the amazing unity of purpose, and uniformity in execution, which marked California's festival.

On landing, I drove direct to the Great Palace Hotel, which has six storeys besides the basement, and at each corner a staircase and an elevator, constantly working up and down. Besides the immense public rooms, there are bedrooms for one thousand persons; and on this night the house was full. So also were all the neighbouring huge hotels.

The knowing residents went to the roof, from which they obtained a view of the great triumphal procession winding through the streets, with blue, red, and white lights, alternately lighting up all the tall spires and towers, and producing very beautiful effects of weird colours.

Not being up to this, we took up an excellent position in a window of the Great Hotel, close to a great floral arch, and looking out on the dark mass of densely packed human beings. Then came the procession in which were represented all the civic bodies, and all the principal divisions of the army, each preceded by a banner bearing its name. Federals and Confederates, Northerners and Southerners, walked side by side, burying all past animosities in this enthusiastic welcome of America's great citizen soldier.

The different bodies of cavalry won our admiration, especially the artillery, with fifty pure white horses; then came a corps of greys; then bays, &c. After these came a wild-looking man riding alone, in a sort of cavalier dress. This was an Indian tracker, who acted as outrider for the carriage and six, in which sat General Grant and the municipal authorities.

As soon as they drove into the great central courtyard of the Palace Hotel, a chorus of about three hundred voices sang a patriotic welcome,

with very long solos by an American lady, who waved her handkerchief enthusiastically in response to the applause from the crowds that looked down from the six tiers of galleries.

After much cheering, a good band played, to solace the multitude while the General fed, after which he reappeared, made an exceedingly laconic speech, which even the papers could not lengthen to more than four lines, and then vanished.

For a whole week, however, he was expected to be "on show;" and how he and Mrs Grant retained any hands at all, after all the shaking they underwent, is to me a mystery.

I suppose that the hand of a man who has twice filled the President's chair acquires an intuitive habit of clasp and shake which almost amounts to discovering the secret of perpetual motion!

At the end of that week, a large steamer sailed for Hawaii, and carried me from the land of Granite Crags to that of the Fire Fountains.

CHAPTER I.

TOPSY—A VOLCANIC ISLE—HONOLULU—DR DAMON—SHIPPING—THE CATHEDRAL—LUNAR NAMES FOR EACH NIGHT.

ON BOARD THE CITY OF SYDNEY,
NEARING THE SANDWICH ISLES, *6th Oct.* 1879.

DEAREST NELL,—We hope to reach Honolulu to-morrow. After my six weeks' voyage from Tahiti to San Francisco, this, of only a week, seems nothing in point of time; but I am thankful it is so near its close, for it has been singularly disagreeable, notwithstanding the pleasant society of several residents in Hawaii, whose company has gone far to redeem its discomforts.

The vessel, though a very large ironclad, is overcrowded and top-heavy, and as we had pretty rough weather at starting, she rolled so much that every one on board was horribly sick—a contingency apparently unexpected and unprovided for, so the disgusting condition of every corner may be imagined. It was too horrible.

Besides sixty passengers for Honolulu, there are a number for Australia and New Zealand, including a large circus-party, the agent for which is a much-travelled Italian with a very agreeable American wife, who sings well. They have a large human company, besides tigers, zebras, llamas, performing dogs, &c., &c., and twenty-seven beautiful horses.

We have a most undue allowance of young children on board — twenty-five being under six years of age; and several elder children, including six or eight big boys, rampage noisily all over the ship, greatly to the annoyance of their elders.

From the fact of there being so many passengers, all we, poor Honolulu flock, are condemned to have our meals with these children before the regular hours, and always in a scramble; and to make matters worse, both the dining-saloon and our state-rooms are so low in the water that, though the last three days have been dead calm, we have never once had the ports open, so the place is stuffy and horrible. My cabin is so very close that I go up and sleep in the Social Hall.

You know I can "rough it" as well as most folk when there is any occasion, and can make the best of coarse fare in poor quarters; but on these palatial vessels we all expect luxury, and generally get it, in a measure.

We have had some amusing incidents, however, and derive much amusement from the performances of a negro nurse, aged seventeen, in charge of some fair white children. She is a regular Topsy, and exceedingly clever, remembers every sort of poem and story she has ever heard, and (with a twinkle of infinite sly humour) sings the very funniest camp-meeting hymns.

Two nights ago (the people having shaken together, and developed much musical skill) we had a formal concert in aid of the New South Wales shipwrecked mariners' fund. It was a great success, and Topsy (having only once seen a performance of Hamlet) came forward and recited the whole ghost scene with much dramatic effect. She was immensely applauded, and when a Chinaman (deputed by the head-steward) advanced and presented her with a large decorated cabbage, stuck on a pole, in lieu of a bouquet, the delight knew no bounds. Topsy fully appreciated the joke, and bowing to the company with inimitable fun, carried off her testimonial.

Yesterday being Sunday, one of the passengers read service, and afterwards there was some really good sacred music. In the evening a pile of Sankey's hymn-books were produced—ship's property, I think—and I was much struck by the number of people present who all knew them in correct parts,

and sang them most agreeably. Several of the ship's officers and all the Honolulu ladies formed the nucleus of a very pretty choir.

Now we are just nearing the islands, so I must watch the coast.

At night.

When I stopped writing, we were almost abreast of the Isle of Oahu, a pile of hot, uninviting, red and yellow volcanic hills, without any apparent herbage. In general form they are something like the Cuchullin hills in Skye, but lack their poetry, and they looked doubly hot and red in the glow of the sunset.

It was almost dark before we entered the harbour. A great crowd had assembled for the one great event of the month—namely, the arrival of the steamer. Of course almost all the passengers went ashore, including all the circus company, with most of their animals. They intend to join a circus which is already here, and have a grand show.

I thought the unusual luxury of a quiet evening was not to be lightly sacrificed, so I stayed on board with a few friends, who purpose starting at three o'clock by moonlight and driving up the valley to see it; and the sunrise thence. This is their only chance, as the steamer leaves for New Zealand after breakfast.

I have been much reminded of Aden by the awful desolation of this barren volcanic coast; though that paradise of the Red Sea is infinitely more picturesque than this, and my impression is, that its hills are much higher. They certainly are far more shapely.

But these are more remarkable in colour. There are distinct strata of black and bright red, purple and brown lava, all thrown about in the most eccentric masses. Some huge peaks of the darkest basalt rise from a bed of smooth red lava which in places looks almost scarlet, though generally of a dark brick colour. In places, the rock appears to be perforated, as if the rains had washed away the more porous portions.

Here and there, overhanging crags gave one the impression of a lava-flow having cooled just at the moment when it was about to fall over a precipice, and there remained, for ever fossilised. At other points, distinct blue-grey bands showed plainly where rivers of liquid rock had flowed in resistless might, and spreading out along the shore, had left rugged tracts of dark lava, broken up, probably by earthquakes, into huge masses, which would seem to defy the stoutest scrambler from exploring that coast.

In some places, a greenish tint gives some relief to the eye. It is due, I am told, to the

presence of olivine; but porphyritic lava seems to predominate.

It was not till we rounded Diamond Head that we began to see anything like vegetation — some clumps of cocoa-palms and acacia; and, as we came into harbour, we could discern a wooded valley, in which, we are told, the town lies concealed.

HAWAIIAN HOTEL, HONOLULU,
October 7th.

I always love getting ashore in the tropics.

One feels certain of seeing some new, pleasant combination of form and colour—something delightful in the way of foliage, flowers, fish, birds, or people.

If I do not write very enthusiastically from here, it is because I have already told you so much about tropical life in the South Pacific; and, so far as I have yet seen, this is a somewhat pale edition of it all, lacking the richness of the South Sea Isles.

It seems to me that all that makes this place delightful is artificial. It is purely American, idealised by imported vegetation. Certainly it is a most marvellous triumph of man over nature, for the very existence of the lovely trees and flowers, which now grow so richly in this valley, is due to incessant irrigation.

It is hard to believe that only a few years ago the town of Honolulu consisted of a few scattered wooden houses, in a bare and hideous wilderness.

Now a multitude of pleasant two-storeyed bungalows are embowered in gardens brilliant with flowering shrubs, and shaded by the richest trees of the tropics. Beautiful passion-flowers and starry clematis, orange venusta, and bougainvilleas, with their rich masses of magenta foliage, climb in profusion over the verandahs and droop from the roofs, which indeed they almost conceal — heliotropes, roses, and geraniums, well repay the care bestowed on them. Golden allamandas and rosy oleanders, pure white trumpet-flowers, scarlet and yellow hibiscus, and fragrant gardenia, are among the commonest shrubs, while starry white lilies[1] grow in rank profusion, as does also a beautiful and fragrant white cactus, the night-blowing cereus, which creeps unheeded over rough stone walls and banks.

Overhead the feathery tamarind-trees form a soft veil of the lightest lace-like foliage, or large glossy-leaved india-rubber trees throw their cool dark shadow on smooth green lawns; and mango and bread-fruit rank as handsome foliage-trees, though their fruit is not to compare with that of the Southern Isles. Norfolk Island pines and date-

[1] *Crinum asiaticum.*

palms both grow luxuriantly, also the magnolia and eucalyptus.

Almost the only indigenous tree of any importance is the large silvery-leaved candle-nut,[1] which seems to flourish throughout the Pacific. There is also a considerable growth of a native acacia; but the prickly-pear (which now forms so conspicuous a feature in the landscape, and seems so thoroughly in keeping with the weird barren ugliness of the waste grounds where it most abounds) was actually imported from America. The aggressive guava scrub is also a foreign settler, and now forms dense impenetrable thickets, covering large tracts of country. The Hawaiians say that they are even indebted to foreign intercourse for the presence of musquitos, a plague with which they would gladly have dispensed.

Honolulu has all the appearance of being the work of an enchanter's wand, so lovely is this oasis in the parched and thirsty land which stretches to east and west. But, as I have already said, the only wand required has been an abundant water-supply; and this has been obtained by the construction of large reservoirs for the valley, which are fed by every rain-shower, and from which pipes are led all over the town. Then many artesian wells have been sunk, and every householder

[1] *Aleurites triloba.*

invests largely in india-rubber tubing, whereby movable fountains are kept ceaselessly playing in some corner of lawn or garden, just as in San Francisco.

Even in the oasis itself, you can never forget the volcanic origin of the place, for just above the town is a steep conical hill of most fiery red scoria, with a large crater, known as the Punch-bowl; and a little farther lies Diamond Head, a promontory of the reddest, most igneous-looking rock. This, too, is an ancient volcano: its sides are seamed by lava-streams, and within it lies concealed a crater about 700 feet in depth. The headland is about 760 feet in height, but, like all the other volcanic landmarks hereabouts, it is yielding to the disintegrating influences of wind and rain, and is literally crumbling away.

Between Diamond Head and Honolulu lies the pleasant village of Waikiki, which is the sea-bathing quarter, where the citizens drive out for the luxury of a surf-bath, and where the royal family and other high chiefs have cool native houses, hidden in groves of cocoa-palms.

This island of Oahu is literally one great cluster of craters, with lava-streams and volcanic crags; and though many centuries have probably elapsed since any have given token of life, these bare, red hills look fiery enough to suggest a possible out-

break at any moment. At best they yield a dry parched vegetation, so uninviting, that only dire need can induce the hungry cattle to go in quest of it. Apparently the euphorbia predominates. It is all grim and forbidding, though of course intensely interesting to the geologist.

I am told that about thirty miles to the west of Honolulu lies a remarkable group of craters: one of these, which is about a mile in circumference, is the bed of a very salt lake, which forms so thick a deposit as sometimes to support the weight of a man. The general basin is very shallow, not exceeding two feet in depth, but the central chimney is unfathomable, and some suppose that this strange water-crater is connected with the sea, from which it is distant about a mile. Others maintain that the salts are of a different composition from those of the ocean, and that the lake is simply a quiescent geyser.

Certainly this is the most untropical-looking island I have yet visited. In looking at its bare barren cliffs and peaks, all of a dull brick-red or hot yellow, parched and cracked by the burning rays of the sun, which beat so fiercely on their utterly undraped nakedness, it is hard to realise that these are the tropics of the North Pacific—so wholly unlike the misty verdant paradise of the Southern Isles. From Tahiti, 20° south latitude, I

have passed to Oahu, 20° north of the equator, and, oh, how great is the change! There the whole landscape is a smile—a winning, attractive smile. But this is repulsive. He would need a stout heart who starts to explore these wild rugged hills.

Yet on a closer inspection one sees that some are partially wooded, chiefly with guava, mimosa, and other scrub, and the mountain-ranges are divided by deep narrow ravines and gulches, whose fresh green suggests that there, at least, the grasses and ferns have found the moisture they crave; and in this volcanic soil, water is the only magician needed to convert the desert into a paradise.

This is a very pleasant hotel—cool and shady, with green lawn overshadowed by feathery tamarinds and acacias. I think they are called algaroba. It is a large wooden house, with cool airy rooms opening on to wide verandahs, where people sit reading or writing or chatting, as the case may be. Several of my fellow-passengers are here, and form a cosy little society; and already several of the residents have called and been most friendly, beginning with our kind consul Mr Wodehouse, and Mr Davies the vice-consul.

The very first to welcome me. as I believe they do all new-comers, were the Rev. Dr Sam. and Mrs Damon, two of the real old inhabitants. They have been working here for forty years, and he is

now chaplain to the sailors, and takes the kindest care of all whom the ships bring. They called for me this afternoon, and took me for a lovely drive all about the town and the immediate neighbourhood; and as we passed one after another of the bower-like houses, almost hidden in the wealth of trailing vines and gay blossoms, they gave me some idea of whose they are; and as many names are already familiar, I begin to feel as if I really knew something about the place! Though the sun was blazing, the air was so cool that I was grateful for the loan of a shawl, though wearing a woollen dress and petticoat.

Dr Damon had some kind errands to some of his shipping friends, so we first of all drove back to the wharf where the two interinsular steamers were lying, just starting on their weekly trip,—one to the north, the other to the south of the group. A great many people seemed to be going by one or the other, and a multitude of friends had come to see them off. They are a fine stalwart race, both men and women, full of mirth and laughter, and seem to be very friendly among themselves. But they impress me as a far less graceful race than their southern cousins at Tahiti. Even the dress, which is really the same (namely, a long calico robe, hanging in folds from a plain yoke on the shoulder), is worn fuller and shorter, so that the wearer looks

stouter and more bunchy. Here it is called the *holuku*.

Even the colours worn look dull after the delicate pinks and sea-greens so dear to Tahitian girls, and the gorgeous *pareos* of the men. Here all the men wear some sort of foreign dress; and though, happily, some frivolous young people indulge in bright colours, the majority of the women seem to affect dark-plum colour, browns, and drabs, only relieved by *leis*, which are necklaces of flowers or feathers, so strung as to resemble a thick rope. Some are very pretty, being made of small roses, stephanotis, marigolds, ginger-flowers, oleanders, gardenias, or jessamine. Others wore trails of the fragrant *mailé*,[1] a small-leaved creeping vine, or of a lovely climbing fern.[2] These, gracefully twined round the hat and shoulders, are pretty. Some of the men wear *leis* of scarlet hibiscus, a splendid piece of colour, but many have a more durable string of the conical sections of the orange-coloured screw-pine. These are greatly in favour, because they do not need renewal so often as the flower *leis*, which, though they retain their fragrance for several days, are of course withered in a few hours.

Horrible to relate, I saw several "advanced" girls wearing *leis* of artificial flowers! Such is progress!

[1] *Alyxia olivæformis.* [2] *Microlepia tenuifolia.*

I fear that the picturesque element is fast fading away from Hawaii. A few years ago all the girls went galloping joyously about the town, wearing over their *holukus* a gay riding-dress called the *kehae* or *pa-ú*, which was simply a strip of crimson, orange, purple, or yellow calico, twisted round the body so as to form a kind of very loose trousers, with ends flying in the breeze.

The ladies who wore these gay dresses rode men's Mexican saddles, with a high peak at the back, and a horn in front with bosses of polished brass, gay-coloured saddle-cloths, and large wooden stirrups, and leather flaps to protect the foot when riding through brushwood. We saw a few of these sad dles on weary-looking, half-starved horses, who were patiently waiting for their masters at the dusty wharf.

But the ladies of Honolulu apparently no longer think it "genteel" to ride in the old happy harum-scarum style, so they hire "buggies," or "expresses," or some other variety of wheeled vehicle, and take the air soberly!

The business part of the town near the wharfs is not a pleasant spot in which to linger in a grilling sun. It is a dirty, dusty expanse of mingled sand and black lava, crushed to fine powder, and flying in hateful clouds as horses or carriages pass by. Heaps of timber here lie ready for house-

building, and piles of sugar and coffee-bags for shipment.

Besides the two island steamers, there were a number of small trading-ships, and a large one had just come in from England.

Judging by the number of Packet agencies which are here established, the shipping list must be a very lengthy one. I see advertisements of Boston Packets, Bremen Packets, Hawaiian Packets, Planter's Line, Spreckels' Line, Merchant Line, New York Line, Liverpool and Glasgow,—and last, but greatest, the Pacific Mail S.S. Company. These are represented by five distinct agencies, and suggest a condition of commerce by no means insignificant.

The interinsular trade is carried on by upwards of sixty vessels, ranging from 41 to 219 registered tonnage. These are barks, brigantines, schooners, sloops, and steamers. The latter number half-a-dozen, and ply regularly between Honolulu and the other isles. They are commanded by white men, and manned by Hawaiians. They vary from 190 to 218 tons; so you can understand that by the time they have shipped an indiscriminate mass of human beings,—white men, Chinamen, and Hawaiians—horses, cattle, baggage, timber, sugar, coffee, and sundries,—there is not much elbow-room to spare, and certainly no possibility of luxury.

All these little steamers are said to be alike dingy and dirty, so the voyages from isle to isle must be anything but pleasure-trips. I do much enjoy the prospect that lies before me!

At the same time, is it not wonderful to think of the existence of all this commerce and civilisation when you consider that Honolulu was not even discovered till the end of 1794—*i.e*, fifteen years after the murder of Captain Cook, when Captain Brown entered the harbour in the schooner Jackal? He was well known in the group, and had always found the natives friendly. But *l'occasion fait le larron*[1] in all lands, and when on New Year's Day 1795, nearly all the crew, both of the Jackal and her companion ship, had gone ashore, the natives flocked off to the vessels, crowded on board, murdered both commanders, seized the ships, and took them into Waikiki Bay.

When the men ashore found out what was going on, they followed in their boats, and by a vigorous attack regained possession of both ships, and straightway sailed for China.

Waikiki is to Honolulu as Brighton is to London. Though only distant three or four miles, some people, especially royalties, have a town and a country house, and occasionally move from Honolulu to Waikiki for change of air! It is a strip

[1] "Opportunity makes the thief."

of very dry level ground, extending along the base of the hills towards Diamond Head.

Wednesday, 8th.

I went out early this morning to look about me, and found my way to the little English Church, which is close to this hotel. It is very plain externally, but fresh and pretty within. The service was just over, so I continued my wanderings, and presently came to the large Roman Catholic Church, where Mass was being sung. I noticed four white "Sisters." A fifth, apparently a novice, knelt alone before the altar.

All the pretty gardens here make this wilderness of villas very attractive. Here, as in the suburbs of San Francisco, it is quite curious to contrast the exquisite green of the incessantly watered lawns with the deep dust of the roads and neglected corners. Amongst the numerous imported shrubs and trees which have taken so kindly to this new soil, I noticed many old friends, — the feathery pepper-tree, the graceful bamboo, fan and date palms, cinnamon, orange, citron, lime, fig-trees, custard-apple, Avocado pear, Indian banyan, rose-apple, and many more,—all combining to make this pretty settlement very much like a large botanical garden, happily without any of its stiffness.

After breakfast I began a sketch from the glass observatory at the top of this hotel, which commands a very fine panoramic view of the place, looking up the valley and over the embowered town (only revealing an occasional glimpse of a roof) to the wide calm blue ocean.

In the afternoon my genial countrywoman Mrs Stirling took me to call on the five Church of England "Sisters," brought here some years ago by Miss Sellon. They have established an excellent school for about thirty boarders, white and Hawaiian, besides receiving a number of day-scholars. I need hardly say that so useful a life appears to be a truly happy one, and the Sisters look as sunny as do their flock.

Later in the day we walked about two miles out of town to see Mrs Wodehouse, who has just returned from England, and who gave us some notion of the troubles of keeping house for a large family, in a country where good servants, as we understand the word, do not exist — unless imported at considerable expense and risk — where white female servants are a luxury not to be obtained, and yet, where a careful mother feels it to be a serious evil to have to allow her children to be much with native women, whose topics of conversation are not to be relied on.

Our walk lay along a dusty road on a dusty

plain, which, however, had one great attraction in my eyes, in the low scrub of sweet, yellow, thorny mimosa. Its little round balls, like fluffy silk, are associated with many pleasant days in far countries.

We returned here just in time for dinner, during which several of our kind new friends came to call, just to see if we were all right. Some had called while we were at breakfast, and others at intervals all through the day. Of course while *en voyage* one has no fixed hours, so that such friendliness is truly appreciated.

I find I ought to have called the little English church the Cathedral—a large name for anything so small. But it is considered merely an earnest of good things to come—a temporary chapel, to be some day replaced by a permanent cathedral, the foundations of which were laid some years ago, and which is now at a stand-still till funds can be raised for its completion.[1] I went to the evening service, which was peaceful and home-like. A surpliced choir sang well; but it sounded strange for the first time to hear Bishop Willis pray for "our sovereign lord, King Kalakaua."

[1] A vigorous effort is now being made to raise the 50,000 dollars required for this purpose—King Kalakaua, the Queen, and Dowager-Queen Emma heading the subscription list, while a resident Englishman has presented the stone; so the masons are now busy at their share of the work.

When we came out of church the moon had risen ; and the evening was so lovely that I strolled on with some new friends, and presently the king's band began to play quite divinely. It is a first-rate band of about thirty performers, trained by an admirable German bandmaster. I suppose its excellence is due to the fact that several members of the Royal Family are themselves good musicians, and so take great interest in it.

It really was an unexpected treat to hear such melody, with such lovely surroundings. The light delicate foliage of the tamarind and algaroba seem still lighter and more feathery in the soft moonlight. They form the most characteristic feature in Honolulu, at least to my South Sea eyes, sated with the loveliness of large-leaved glossy foliage.[1]

I have been getting a lesson in the lunar names of days, or rather of nights.

Only in a land of soft tropical skies and cloudless nights could it have occurred to the people to give a separate name to each night of the month, according to the varying aspects of the moon, as

[1] I still have this feeling strongly in Britain. To any one returning from a residence in the tropics, or in Californian forests, our own woods necessarily appear stunted and poor. The only tree which is eminently distinctive, and irresistibly claims reverent homage, is the graceful birch, with its veil of tiny leaflets. A drooping white-stemmed birch, in its glory of autumnal gold, and a rowan-tree laden with scarlet berries—these, seen in the sunlight against a clear blue sky, will hold their own against all the wealth of tropical vegetation.

she waxed or waned. Previous to adopting our reckoning, the Hawaiians allotted thirty nights to each month, showing no favour to any.

The first night was called Hilo, to twist, because the moon was a mere curved line; the second night was Hoaka, a crescent. The following nights were Kukahi, Kulua, &c. When the sharp points of the crescent were lost, it was called Huna, to conceal; and when the moon became convex, it was Mohalu, to spread out. As it still waxed, it was called Hua, to increase; and when quite round, it became Aku, clear. The three nights of quite and almost full moon were Hoku, Mahealani, and Kolu. Then as it diminished, night by night it was known as Laau-kuhai, Ole-kulua, Kaloapau, and so on till it had almost disappeared, when it was called Mauli, or overshadowed; and when it finally vanished, the moonless night was called Muku—*i.e.*, cut off.

CHAPTER II.

WINDWARD VERDURE—LEEWARD DROUGHT—ROYAL MAUSOLEUM—ANCIENT CUSTOMS OF MOURNING — THE PALI — MOUNTAIN GODS—CAIRNS—IMPORTED CORALS—MARKET-DAY—SPURIOUS CURIOS.

HAWAIIAN HOTEL, *Saturday, 11th.*

THREE days have slipped away very pleasantly in exploring the neighbourhood, under the guidance of various kind residents. I always think it adds so much to one's enjoyment in a new country, to be shown the points of interest by people who really have studied their past and present history.

As concerns the present, one of the most curious things to notice, in driving along the coast, is the action of irrigation on this soil—the abrupt transition from rich crops of all sorts, rice, taro, sugar-cane, &c., within the limits of the settlement, to the dreary world of bleak red volcanic ash and lava blocks in all stages of disintegration, which lies beyond, clothed only with weird great cacti. The line of demarcation between the green shores

of the Nile and the sands of the great Libyan desert is not more clearly defined.

The strange thing is, that on this isle, and I am told throughout the group, it is only the leeward side which is thus parched and arid. The windward side is invariably green — thanks to the beneficent trade-winds which, beginning in March, never cease blowing steadily (with slight variations) for nine months in the year, and bring rain-showers so abundantly, that artificial irrigation is scarcely required.

Honolulu, you perceive, is on the leeward side, its position having been no question of selection, but a necessity, arising from its being the only harbour with deep water, and consequently the one place of call for all large vessels.

The great mountain-ridge, from three to four thousand feet in height, which forms the backbone of this island, effectually shuts out the trade-winds from this side, except at one point, where a great cleft in the ridge, known as "The Pali," acts as a funnel, through which they rush, ofttimes rain-laden, though still more frequently bringing clouds of hateful red dust.

Happily this great gap is situated just above Honolulu, at the head of the Nuuanu valley. Hence the refreshing, though somewhat over-active, breeze which sweeps down the valley to the town.

Hence, too, the greenness of the upper half of the valley, in contrast with the barren shore. So many of the showers have spent themselves ere they get down to the town, that the upper and lower ends of the valley have literally distinct climates, and the people who make their houses two or three miles above the town can have their gardens always fresh and green, without any expense and trouble of irrigation.

So marked is this difference, that I am told the rainfall for a whole year has been found to vary from 37.85 on the sea-coast, to 134.06 in the valley, 550 feet above the sea-level, a distance of barely three miles.[1] It is no joke, but an actual fact, that some streets are more rainy than others!

But as the majority of the showers are arrested by the great rock-wall, and thrown back in rivulets to water the windward coast, it follows that the latter gets altogether the lion's share; and so the other side of the island is luxuriantly green, and yields abundant crops to the sugar-planter or other cultivator.

So steep is the zigzag path over the mountain, by which alone people can pass from one side of

[1] This was in a year of exceptionally heavy rain. As a standard of comparison, I am told that the average rainfall of London is about 23 inches; that of Ross-shire 50 inches; that of Cumberland 120 inches.

the isle to the other, that all produce, whether for market or export, is brought right round the island by sea.

As a matter of course, every new-comer is at once told to drive or ride to the Pali, as the crowning point of the Nuuanu valley, and that from which he can obtain the most complete idea of the lee-ward and windward halves of the isle, and their strongly defined characteristics.

The ride up the Nuuanu valley is altogether very lovely. The lower half is occupied by that labyrinth of luxuriant gardens and flower-veiled houses which form "The West End." As usual, the Chinese excel in their horticulture, and the loveliest garden of all, fragrant with beautiful roses, is that of Mr Afong, a very wealthy merchant, of high standing in the town. His poorer country-men rent small patches of ground, which they have converted into market-gardens, where they raise all manner of excellent vegetables for the market.

Here and there we passed groups of native houses, thatched and walled with dried grass. They seemed to me poor and less substantial than those in which I have spent so many happy days in the southern groups. However, we had no occasion to enter any, but saw many family groups sitting out of doors, sharing bowls of *poi*, which is

still the approved diet of the country, and is to Hawaii as porridge is to Scotland.

On our way to the Pali we passed the royal mausoleum, which is a small but ornamental Gothic building of stone, partly erected by Queen Emma in memory of her husband, who was the first to be laid here. Within it lie the Hawaiian kings, queens, and their little ones, of several generations, in coffins of highly polished wood, or else covered with crimson velvet.

The bones of the great King Kamehameha I. were preserved in the true native fashion, and are enclosed in a square chest. At the feet of the coffins, and at the door of the mausoleum, are placed tall *kahilis*, honorific symbols, which to irreverent foreign eyes are suggestive of gigantic feather-brushes, or rather bottle-brushes—the brush part being composed of a long cylindrical basket about a foot in diameter, and from twelve to fifteen feet in height, to which are attached the feathers, which are generally black or rose-coloured. This feather-drum is mounted on a long handle, adorned with rings of sperm-whale's teeth and tortoise-shell. In native processions it is carried like a banner, and represents the coat of arms of the owner. Sometimes they are made of peacocks' feathers, sometimes of parrots' and other tropical birds; others, of feathers brought from the guano isles. They are of every

colour—purple, blue, green, black, white, crimson, and scarlet; but the most precious are those made of the red and yellow feathers of the sacred bird, found only in the mountains of Hawaii.

Looking at this beautiful little mortuary chapel, I could not but remember the description given us by Ellis of the burial-place of the Hawaiian kings fifty years ago. It was a strong wooden building, thatched with dracæna-leaves. It stood on a pavement of smooth blocks of lava, and was enclosed by a strong fence, the great posts of which were carved in the likeness of hideous gods. Others were grouped all about the place—some on low pedestals beneath shady trees, others on high posts, on jutting rocks overhanging the sea. On the platform was raised a great cairn in the shape of a crescent, in the centre of which stood the principal idol on a curiously carved pillar. Twelve lesser gods were ranged in a semicircle, six on either side. They varied in size and in the height of their pedestals—some being only three feet in height, and others eight or ten. The chief idol was by no means the biggest, but he was the most elaborately carved.

These idols had, for some reason, been spared at the time of the general destruction of their relations in 1819: so they were left to the influences of time and weather, and a few tattered sun-bleached rags alone suggested the robes with which they had

once been adorned; while piles of broken calabashes, withered wreaths, and rotting offerings, at the feet of each image, were all that remained to tell of the homage which had so suddenly been diverted from its ancient channel.

A strict *tabu* forbade any one from entering the house of the dead kings—the *Hare o Keave* (the House of Keave), who was the tutelary deity of the place, a deified king. A loose board, however, favoured the inquisitive travellers, who, looking in, beheld many large carved wooden images, and some covered with the precious red feathers, having eyes of pearl-shell, and wide mouths armed with shark's teeth. They also saw bundles of human bones, carefully cleaned, and tied up with string made of cocoa-nut fibre. Each bundle lay apart, and beside it were articles of raiment and other things which had probably belonged to the owner of the bones, it being customary to bury the personal property of a chief with himself.

Happy, indeed, is it, that the horrid rites of those days now belong to a forgotten past. Then the funeral of a high chief was the occasion of a wild saturnalia, of the most hideous dances, and of bloody sacrifices on heathen altars. At the death of the great Kamehameha I., no less than three hundred poor dogs were thus offered to the gods. The mourners were not content with burning and

cutting their own flesh, and subjecting themselves to physical pain, but the most unbridled licence was allowed. Every moral and legal restraint was thrown off, and vice and crime ran riot. Clothing was altogether dispensed with, and the days of mourning were a pretext for the vilest orgies, when drunkenness, gambling, fighting, sometimes even murders, were perpetrated with impunity.

Such honours as these were reserved for really great men. The humbler classes might mourn their dead in a more sober manner; and the customs generally observed seem greatly to have resembled those of eastern Polynesia. Here (just as in Fiji at the present day) relations attired themselves in the most miserable frayed old mats or tattered fishing-nets, tied on with canoe-ropes. Then, taking their place near the dead, they indulged in every symptom of frantic grief, weeping and wailing incessantly for several days, and sometimes breaking forth into plaintive dirges expressive of their own anguish, and in praise of the friend who was gone from them for ever.

As in Fiji a mourner will cut off a joint of a finger to prove the reality of her grief, so here it was customary, on the death of a chief, for his followers to knock out one of their front teeth; and if a man had not sufficient courage to perform this operation for himself, his friend or his wife was

ready to oblige him. So that few men who had attained middle age had not thus sacrificed the greater number of their front teeth.

Women were, as a rule, less willing thus to destroy their beauty; but both sexes subjected themselves to the torture of having their tongues tattooed—for they said that great as was the pain, it was as nothing to the love they bore the dead, and that they chose this special mark of mourning because it could never be obliterated, but would serve as a perpetual memorial of their loss.

The manner of burial depended on the rank of the deceased. The poor were placed in a sitting posture, with the face resting on the knees. They were thus bound with cord, wrapped in a coarse mat, and so buried, sometimes beneath the floor of their own homes. But more frequently (lest their spirits should haunt the living) they were carried to a cave in the mountains, and there laid among the bones of many generations.

As to cairns, I am told that there are places along these shores which are strewn with old cairns, each marking the spot where, years ago, some brave warrior fell in battle: the greater the chief, the larger was his cairn. Now all are moss-grown, and many have disappeared beneath successive lava-flows.

But in the district of Kona, there still remain sev-

eral dolmens, consisting of three rough stones supporting a fourth. Nothing is known concerning them.

Among the quaint superstitions of heathen days, was one which seems to have been indigenous in most lands, from Northern Asia to the Scottish Hebrides. When we were in Fiji we heard of the sympathetic black stone of Bau, which never failed to give birth to a little stone whenever a chiefess of high degree became a mother. Here, in Hawaii, the rude stone-gods were likewise of miraculous birth. Their parents were selected from among the pieces of water-worn lava on the sea-shore, by persons competent to discriminate such stones as were suitable for deification. These were carried to the temple, and certain ceremonies performed, by which they were transformed into gods, after which they were robed in native cloth, and duly honoured. Having decided which were gods and which were goddesses, they were paired off, and each couple were wrapped together in a piece of *tappa;* and in due time this covering was removed, and a baby stone was found to have made its appearance to complete the happy family.

This little stone gradually increased in size, until it was as large as its fond parents, when it was removed to the temple. Thenceforth it was periodically brought out to preside at all public games. Such gods were the property of the family under

whose care they had been reared, and were of course expected to bring good-luck to their owners. Should they fail to do so, they were, after due trial, contemptuously deposed, and often broken to bits; but if their votaries proved successful, then the stone gods acquired great fame.

When we remember that sturdy Scottish Highlanders and Islanders offered libations of beer or of milk to similar stones and wave-worn pebbles even in the last century,[1] we need hardly marvel that the Christian teachers in Hawaii found this superstition in force long after all other idols had been abolished.

It is stated that the stones which were most suitable for this singular manufacture of gods were found on the pebbly shore of Koloa, near the village of Ninole, on the island of Hawaii. The same place furnished the best pieces of hard close-grained lava for making stone adzes. One such cavern was often set apart as the cemetery for a whole village.

The bodies of the priests and of the secondary chiefs were laid out straight, and swathed in shrouds of native cloth. The priests were generally buried within their temple-enclosures, a cairn of small stones marking the spot where they were laid.

But the high chiefs whose ancestors were revered

[1] From the Hebrides to the Himalayas. By C. F. Gordon Cumming. Vol. i. p. 252.

as demi-gods, or who were themselves to be enrolled in the ranks of the heroes, were sometimes embalmed (the brains and entrails being burnt). But more often their skulls and principal bones were carefully preserved, wrapped in crimson cloth, and deposited in the temples to receive divine honour; or else they were secretly removed by some near relative, who carried them to a secure hiding-place, known only to himself, where they might rest secure from all dread of witchcraft.

Leaving the royal tomb, we continued to ascend the green and beautiful Nuuanu valley, passing more pleasant homes, embowered in blossom, till we came to the higher ground, where the vegetation consists chiefly of guava scrub and thickets of the pale lemon-coloured hibiscus, which I find so abundantly in every group I visit. In Fiji we call it *vau;* here I think it is *hau.* There is also a good deal of a small acacia,[1] and of the silvery grey-green candle-nut.

Some of the old stone walls at this high level are thickly matted with the night-blowing white cactus, and the air is scented by its fragrant blossoms. I am told that from the young shoots a tincture is prepared, which is considered highly efficacious in the treatment of heart complaint.

So, near the summit, everything looks fresh and green: no mistake about those rain-showers. There

[1] Acacia koa.

are even rivulets, rippling over rocky beds, fern-fringed, and the grassy carpet grows rich and soft.

Before us lay the Gap—the mighty cleft in the crest of the volcanic ridge. Abrupt masses of dark rock rose on either side, and a few steps forward brought us to the verge of the *pali* (or precipice), whence descends the precipitous zigzag path which enables the inhabitants of one side of the isle to visit those on the other. It does not look an inviting path, and I fancy that foreigners generally prefer to lead their horses up and down; but the reckless natives take their chance, and keep their seats, or else drive their beasts heavily laden.

From this point we looked right along a grand wall of precipitous crags. That on which we actually stood is said to be a sheer face of 600 feet; but the general line of rock is much more imposing, rising in places to a height of 2500 feet—not perpendicular, however.

A thousand feet below us, enclosed by this rock-wall on the one hand and the blue Pacific on the other, we beheld a level tract of fertile land dotted with the homes of the settlers; and the fresh rich green told of broad fields of sugar-cane, which is here so largely cultivated. Cotton has also been grown with success, and clumps of palms and bread-fruit added their beauty to a very lovely scene.

So our first impressions of this very rocky and

barren-looking isle prove untrue, and I am told that there are two wide tracts of pasture-land at the north end of the isle, on which thousands of sheep and cattle roam. But, after all, the island is about fifty miles long by fifteen broad; so if one-half of this is barren, I think our impressions were not unreasonable.

The dividing ridge at Nuuanu was an important position in the old fighting days, and it was here that the last king of this Isle of Oahu was slain, when the great Kamehameha invaded the island in 1790. A decisive battle had been fought in the valley, and the vanquished retreated to the high ground, where they were pursued by the victors. The ground was contested inch by inch: 300 of the brave Oahuan warriors were slain, and those who reached the summit were so hotly pressed, that they were driven headlong over the precipice, and dashed to pieces on the tumbled rocks below. The 300 slain were dragged to a neighbouring *heiau*, where they were offered in sacrifice, and their heads impaled on its walls.

Mr Ellis has recorded, that at the time of his visit in 1822, two rude and shapeless stone idols guarded the summit of the pass, being fixed on either side of the path. They were called *Akua no ka Pari*, gods of the precipice, and were covered with white native cloth, and every passer-by either added an offering of cloth or a garland of flowers; or,

if he had nothing else to give, he laid a green bough before the idols to propitiate the mountain gods.

At every high pass or difficult path, similar images were set up, lest travellers should forget to pay toll to the spirit of the pass. Although idolatry had been formally abolished on lower levels, it still prevailed in these highways and byways, and often as zealous converts overthrew the sacred stones, they were invariably replaced by reverent hands, or, if broken by a fall over the precipice which they should have guarded, new stones were erected in their place.

It is the world-wide superstition which we still find in many a land, East and West. I have seen many such rude shrines on Himalayan mountain-paths, where the bushes were as thickly adorned with pilgrims' rag-offerings as those round holy wells in Ireland. And I have added a stone to many a cairn on Scottish soil, which marked no resting-place of the dead, but was merely a kindly greeting to the guardian brownie or kelpie, or whatever spirit was in charge of the place.

Finding the breeze in the Gap (the wind-funnel) too riotous to be pleasant, we turned to descend towards the town, which lay between five and six miles below us, and appeared like a rich shrubbery, with scarcely an indication of a house, except the larger public buildings, with the vivid blue of the

calm ocean beyond. It reminded me a little of Papeete in Tahiti, only *minus* the lovely distant isles, and the near coral-reef gleaming like a rainbow beneath the water.

Here the coral-reef is a very poor representative of its beautiful southern relations. Instead of the wonderful blending of violet and gold and emerald green, which make those a vision of delight, this is of a dingy brown, and when partly bare at high-water, appears as uninviting as anything of the nature of a reef can be. I am told that most of the good corals which are here offered for sale are imported from the Marquesas.

This being Saturday, and market-day, some friends drove me to the market, where the people mustered pretty strong. Of course a weekly market is a general rendezvous, and there was a fair sprinkling of all the nationalities, and much chaffing and laughing, and buying and selling. Both men and women were adorned with fresh *leis* round hat and neck, and both wear narrow-brimmed, low-crowned hats,—unbecomingly small, I think, for such large people, with such masses of black hair. They also wear bright-coloured handkerchiefs loosely knotted round the throat; but I saw none of the gay riding-dresses which were in favour some years ago, and I greatly fear that they must be given up.

But they all look good-natured and carelessly

happy, as if life's troubles were not worth a thought —and the babel of voices ripples musically. Never a touch of "Billingsgate," though we were in the fish-market, the chief feature of which is the large proportion of devil-fish, which seem in great favour here. I got well accustomed to the sight of these horrid creatures in Japan, where they are also a favourite article of diet. Here they are in all forms and ages and varieties: large octopuses freshly cut up in sections, all ready for a dish; smaller ones still alive, twining their snake-like arms, as if vainly feeling for the free waters where they floated so merrily; and neat little cuttle-fish by the dozen. Some are dried whole for inland carriage, and others are salted and sold as squid.

Of other fish there was a fair variety, gay as compared with those of the Atlantic, but very pale as compared with those of the South Pacific. I missed the gorgeous scarlet and cobalt and emerald green of the Tahiti fishes. But these are beautiful nevertheless—silvery and striped and spotted; and the Hawaiians enjoy crunching up a raw fish, just as much as do the Tahitians, and are equally unable to see that it is worse than swallowing raw oysters; indeed, I am assured that a live cuttle-fish is a greater delicacy than the best oysters. A horrible story is told of a Hawaiian lady of the real old school deliberately commencing to eat one of the

long arms of a good-sized octopus, whereupon the luckless victim showed fight. First it deluged her face and neck with the inky secretion with which nature has endowed it, as a means of baffling its foes. Then it twined its remaining feelers in her long hair. Still the lady was not discomfited, and while battling with her prey, continued her horrid feast.

In the market we saw piles of sea-urchins of various sorts, limpets, oysters, turtles, crabs, cray-fish, and various kinds of seaweed cooked and raw.

The fruit-market appeared to be fairly supplied, chiefly with large juicy water-melons, bananas, cocoa-nuts, Avocado pears, large green oranges with very oily skins—which blister the lips of the unwary—figs, and very indifferent pine-apples. The most tempting vegetables were those brought by the Chinamen. You, as a good housekeeper, always take an interest in the market-prices, so I may tell you that I find milk is 10 cents per quart (about 5d.), eggs 75 cents per dozen, butter 60 cents per lb., while fish and meat average 10 cents per lb. Fish as a rule is rather dearer than meat. Vegetables and fruit are by no means abundant, and consequently are rather high-priced.

In this hotel we are very comfortably housed, and simply but abundantly fed, at three dollars a-day (12s.) I am told that the rate of wages is high. An ordinary workman makes his two dollars

a-day, and a skilled mechanic about five. With respect to household servants, Chinamen seem in favour, as they are content to work, and work well, for five dollars a-week. "John" is on the increase, of course. Out of the 14,000 inhabitants of Honolulu, 1200 are Chinamen, and 100 Chinawomen. The Hawaiians number 9200; the half-castes 1300; American residents 600; British 500; Germans 140; French 40; Portuguese 255, &c.

The Chinese turn their hand to everything. A considerable proportion of the small wooden stores of the "business" town are theirs; and there are shops for the sale of Japanese and Chinese *curios*, and everything else that any one can reasonably be expected to want, including old Hawaiian stone gods, necklaces, and various implements (none of which can possibly be really obtained). These are sold for a ransom to the innocent steamboat passengers,[1] who are told how they were dug up in trenching the fields, but are not informed of their recent burial in those places by their astute Chinese and other manufacturers. Demand creates supply, and I have seen the same process beginning in Fiji, where "genuine old cannibal forks" and other spurious *curios* are now freely offered to travellers.

[1] "D—n fool steamboat passengers!" as I heard them described in Ceylon by a Moorman, who had obtained a ready sale for his sham gems.

CHAPTER III.

HONOLULU — INSTITUTIONS — MUSEUM — NECKLACE — FEATHER CLOAKS — FEATHER HELMETS — QUEEN EMMA — START FOR VOLCANO.

HAWAIIAN HOTEL, *October 12th.*

THIS has been a lovely sunny Sunday. I attended an early celebration of the Holy Communion, at which the Office was read in Hawaiian. So I have made one more addition to my very varied experience of hearing the old accustomed words in the strange tongues of many races. There was a very fair Hawaiian congregation. I believe there had been a previous celebration in English at sunrise. Afterwards I rode up the Nuuanu valley with a friend. The road was very muddy, and the wind was unpleasantly high; but we enjoyed our ride nevertheless, and returned in time for evening service.

Monday, 14th.

This morning we were taken to see the new Government buildings, which are very handsome,

and on an immense scale in proportion to the small kingdom they represent. But official machinery is as fully developed here as in any great empire, and the official salaries alone absorb more than half the revenue of Hawaii! There are governors of all the isles, a chief-justice, an attorney-general, judges, marshals, magistrates, ministers of finance, of foreign affairs, of the interior, &c.—in short, a mechanism sufficient for the efficient government of a population of several millions, whereas that of poor Hawaii has dwindled away to less than fifty thousand.[1]

Amongst the officials, titles are showered as freely as in the colonies. Every one in office appears to have the prefix of Honourable, and I have counted fully forty who are distinguished as "his Excellency," including all members of the Privy Council and governors of islands.

Honolulu seems to possess useful public institutions of all sorts. Amongst others, a reformatory school, where juvenile culprits are trained in such arts as shall enable them to become useful members of the community. Older convicts, from all parts of the group, are lodged in jail, and are compelled to benefit their country by working on the roads and other Government business.

For the insane an asylum is provided at Kapa-

[1] Total population of the whole group of Hawaii-nei, 57,985 (Hawaiians only 44,088).

laina, about two miles from the town, where natives and foreigners are alike kindly cared for.

Of course this very paternal Government takes full charge of the training of its children, and a Board of Education watches over the work of upwards of two hundred schools, which are scattered over the seven inhabited isles, and show an average attendance of seven thousand pupils. Consequently there is scarcely a man or woman in the group who cannot at least read and write. In addition to those Government schools, there are various private institutions for such as prefer them.

Of course Honolulu has its newpapers: the 'Hawaiian Gazette,' published every Wednesday; the 'Saturday Press;' the 'Pacific Commercial Advertiser;' the 'Friend' (edited by Dr Damon, seamen's chaplain); and two purely native papers in the vernacular. Needless to remark that the news is almost entirely of local interest, and on insular topics.

There is only one bank—that of Bishop & Co. (I am told that the legal rate of interest is about nine per cent.)

On the other hand, there are no less than twenty-seven life, fire, and marine insurance agencies.

Freemasonry seems to flourish. There are thirteen masonic lodges in Honolulu, and the king is himself a mason of very high standing.

This peaceful island kingdom possesses no standing army—the military force, such as it was, having been disbanded by the idolised king Lunalilo, during his brief reign of one year. On his death a volunteer militia was raised, and also a body of household troops, known as the King's Guard, and numbering about fifty men. There are five companies of volunteers, who take their part in the pageants of festival days, but are not supposed to be a reliable force should disturbances arise—being subject to no true military authority. In their uniform, capes of yellow cloth have been adopted, as suggestive of the feather tippets worn by the warriors of the great king.

To me the most interesting sections of the new Government buildings were the library and the museum. The former comprises a valuable collection of works relating to this group: voyages, travels, and natural history; botanical, zoological, and geological researches; also a series of books printed both in Hawaiian and English.

The museum possesses a good collection of old Hawaiian treasures — stone implements, spears, clubs, bows and arrows, bowls, necklaces, each made of fully a hundred of the very finest braids of human hair—not love-tokens by any means, but cut from the heads of warriors slain in battle. From these memorial hair-chains there is invari-

ably suspended a very peculiar broad hook-shaped ornament, carved from a shell or a sperm-whale's tooth, and highly polished. It is called *lei Palaola*, which merely means whale's-tooth necklace.

It is peculiar to Hawaii, being quite unlike any ornament known elsewhere, and is supposed to have been a religious symbol,[1] probably representing those singular idols whose widely open mouths gave their heads something of a crescent shape when seen *en profil* — in fact, on some of the carved wooden posts which in heathen days surrounded the temples, a crescent-shaped symbol was substituted for the actual head of the god; so it may readily be supposed that a race who never went to battle, or on a journey, without their gods, may have devised a portable image, as has been done in all ages and in all faiths. All early travellers mention this peculiar necklace as worn by both sexes, though sometimes a small human figure replaced the hook-shaped ornament, and in some cases a number of small ivory or shell hooks were worn instead of one large one.

It seems strange that the true meaning of this essentially national ornament should be so entirely

[1] A very ingenious theory on this subject has been elaborated by Professor Moseley ("A Naturalist on the Challenger," pp. 504-512). He supposes the hook to be a symbol of the crescent-faced wooden gods, and gives illustrations of the process of transition.

a matter of speculation, and the object itself, like all other native productions, a rare museum treasure, when we consider that it is only just a hundred years since Captain Cook electrified Europe by his description of this primitive people—their manners and customs, and elaborate system of heathenism,—not a hundred years since he (perhaps the first white man they had ever seen) was led by enthusiastic multitudes to their temple and seated before the great wooden idol, there to receive worship and sacrifice.

With all possible reverence for the great work so nobly accomplished by the early missionaries, it is certainly a matter much to be regretted that, in the wholesale sweeping away of idolatry, so many subjects deeply interesting to the ethnologist and the antiquarian should have been hopelessly swamped, and everything in any way bearing on the old system treated as being either so puerile as to be beneath contempt, or so evil as to be best forgotten with all speed.

What a debt of gratitude our archæologists owe to those early missionaries who, finding the ancient Britons very obstinate pagans, were content to sprinkle *their* "Marais" with holy water, and to baptise their idols, that the people might still continue to worship them under orthodox names! Thanks to their judicious forbearance, the British Isles retain far more traces of the old

paganism than do the isles of Hawaii.[1] Here most of the idols were burnt, and the *marais* (which are here called *heiau*) ruthlessly destroyed; and even the legends which had been orally transmitted from generation to generation, and would now be of so great interest, were all suffered to die out, or rather were rooted out, to make place for those of Syria and Judea, just as the characteristic native cloth has been replaced by Manchester cottons.

Specimens of the said cloth are among the curiosities preserved in this Hawaiian museum; for, of course, isles which have so long lain on the track of civilisation have necessarily lost all individuality, and it is now impossible to obtain any specimens of true Hawaiian manufactures. Formerly their painted cloth was the strongest and most durable made in the South Seas. Their *pandanus*-leaf mats, wrought in beautiful patterns and colours, were finer and stronger than any to be obtained elsewhere. Their wooden drinking bowls, especially, were admirable specimens of carving. The bowls were perhaps ten inches in diameter, perfectly round, and beautifully

[1] Speaking of the dawn of Christianity in Armorica, Souvestre says: "*On lui baptisa ses idoles, pour qu'elle pût continuer à les adorer.*" For many similar instances, see From the Hebrides to the Himalayas. By C. F. Gordon Cumming. Vol. i. pp. 71, 242, 296, &c.

polished. Some were supported by three or four small human figures, in various attitudes, all accurately proportioned and neatly finished, —even the anatomy of the muscles, in supporting the weight, being perfectly expressed.

Of personal ornaments, bracelets were the most varied, and many women wore little figures of turtles carved in wood or ivory, tied on their fingers, like rings. As a necklace, some wore carved human figures, though the favourite adornment was that mystic hook-shaped ornament, which was tied on by about one hundred fine braids of human hair.

But far more rare and precious are the old war-cloaks and helmets made of feathers, black, yellow, and red—each feather fastened separately into a loop of fine string, so that the inside of the cloak resembles a closely woven net, while on the surface, the feathers are laid as smoothly as on the living bird, forming a rich glossy fabric.

These cloaks and helmets were reserved for the highest chiefs, on the most ceremonious occasions. The length of the cloaks varied with the rank of the chief, some only reaching to the waist, others trailing on the ground.

The inferior chiefs wore short cloaks made of the long tail-feathers of the cock, the tropic bird, and the man-of-war bird, with only a border and

a collar of little red and yellow feathers. Other mantles were made of white feathers, with coloured feather borders, or a pattern of bright feathers on a groundwork of purple or glossy black.

One very rare and precious feather was especially reserved for the king, who alone had the privilege of wearing a cloak of these glossy golden treasures; and as each bird only yields two, the slaughter of these innocents involved by the making of one royal robe is something horrible to contemplate, and the value of the garment is inestimable. In fact, such a cloak was a priceless heirloom; and though his Hawaiian Majesty now appears in full American uniform, the feather cloak of the great Kamehameha is still worn as the coronation robe, and at the opening of Parliament it is spread as a symbolic covering on the throne. It is in charge of the king's sister Kamakaeha, as Mistress of the Robes. It is eleven feet in width and five in length, one sheet of lustrous gold, gorgeous to behold.

But only think of the number of birds represented by such a garment! Why, about a thousand feathers are required to make a *lei* or necklace, which, when finished, is not very attractive, the feathers being strung together so as to make a round necklace, which is rather suggestive of frayed-out silk. But then no commoner could

possess so valuable a jewel, so the feather *lei* holds its place in the regalia. The *leis*, however, are often made of small round yellow feathers, which are very inferior in value to the sharp-pointed royal feather. The bird which yields this priceless treasure is the Oo or royal bird, a species of honey-sucker, peculiar to certain mountainous districts of these isles. It is of a glossy black, and its tiny golden feathers lie underneath the wing, one on either side.

The birds are now very rare, though the method of gathering the annual harvest does not now involve their destruction. It was the great Kamehameha I. who first thought of saving their lives, and ordered the bird-catchers to set the birds free when they had plucked the two coveted feathers. (At the same time, he forbade the wood-cutters to cut young sandal-wood trees, thereby giving a proof of very un-Hawaiian forethought.) So now cunning fowlers go to the mountains frequented by the Oo, and set up long poles, well baited and smeared with a very adhesive sort of bird-lime. On these the birds alight and are captured, robbed of their precious little yellow gems, and then set free again. The feathers are only an inch long, sharp-pointed, and very delicate. Five sell for six shillings. So you can easily understand that at that valuation the royal feather-

cloak is as costly a Crown jewel as could be worn by any sovereign. Certainly so much human labour was never expended on the setting of any diamond.

Kamehameha's great war-cloak is said to represent all the feathers collected by eight or ten successive chiefs. It was the work of a great mind, to convert all the small *leis* and *tiputas* into one splendid royal garment. Unfortunately a good many red feathers of the Mo-mo have been interwoven with the golden Oo, which detract somewhat from its glossy splendour.

This is the only royal cloak now existing in Hawaii. Of course they were always the most valuable possessions of the Crown, and so it happened that now and again one was presented to some greatly honoured foreigner—probably intended as an offering for his monarch (a gift priceless to the donor, but little appreciated by the recipient).

It so happened that one of these was given to Bruce, the Abyssinian traveller, from whom it descended to his granddaughter, Mrs Cumming Bruce, during whose lifetime it was thrown over the bannisters of the old stairs at Kinnaird, together with other curious foreign draperies, and was chiefly prized by the little granddaughter of the house,[1] who sometimes ventured to robe herself in

[1] Lady Elma Bruce, daughter of the Earl of Elgin, now Lady Thurlow.

this strange garment from the far-distant Isles. Now the old house and the quaint cloak are her own; but I fear the latter lost its chief attraction when the hours of happy childhood had passed by.

Another of these treasured vestments had descended to the late king, Lunalilo, as an heir-loom from his mother's royal ancestors. It was a square of six feet; and when the well-beloved died in his prime, and lay in state at the Iolani Palace, he was laid on this priceless cloth of gold — which, at the bidding of his father, was wrapped round him as a kingly shroud. "He is the last of our race," said the weeping chief; "it is his." So the cloak, which, according to Hawaiian estimate, was valued at about £20,000, was buried with him, who alone was entitled to wear it.

Although this feather-work was pre-eminently Hawaiian, it found its way south, to a certain extent. The Tahitian gods had feather coverings; and in Tonga, King Touboo's son is stated (I think by Captain Cook) to have worn a cloak of red feathers. Even in Fiji, neat little tiaras of closely laid soft scarlet feathers were made, and are still occasionally worn at festive meetings.

But nowhere save in Hawaii have I heard of anything resembling these singularly artistic and symmetrical helmets, with their high crest, so

strangely resembling those of the old Greeks. They were worked over a strong frame of wicker-work—strong enough to defend the head from a sharp blow. On this foundation the glossy golden-hued feathers were so closely laid as to resemble burnished gold. The form of the helmets is so purely classical, that it appears impossible that it should have been a spontaneous Hawaiian growth; and it is supposed that in some forgotten age the isles may have been visited by Spaniards, whose cloaks and helmets would naturally attract the envy and admiration of the ingenious islanders, who, for once, were fortunate in having graceful objects to copy. (Do you remember how the poor Tahitian women made tortoise-shell bonnets, exactly resembling the hideous brown silk coal-scuttle bonnets worn by the wives of the first missionaries?)

Amongst the birds which supplied varied feathers for non-regal cloaks were the purple paroquet, wild-duck, and woodpecker, the latter yielding green, red, and yellow plumage. It is a remarkable fact that the Hawaiian group (so I am told) possesses no land birds in common with any other Polynesian group. One of its most attractive songsters is a brown and yellow speckled bird found in the mountains, with a note like our own thrush.

Tuesday, 14th.

I have had several very pleasant glimpses of the easy kindly social life here. All the principal residents have called; and Mrs Stirling has taken me to see various members of the Royal Family at home, the said homes being very comfortable foreign houses, all with green lawn and bright blossoms, and corners of cool inviting shadow, beneath fine trees.

Our first visit was to the Dowager-Queen Emma, known to her people as Kaleleonalani,—a graceful and most courteous woman, with a manner at once winning and dignified. I do not wonder that she is so general a favourite. Naturally the conversation turned to her visit to England, and various friends there. She showed us some valuable old Hawaiian treasures: specimens of the hook-necklace with the multitudinous braids of human hair; pieces of *tappa—i.e.*, cloth made from the fibre of paper-mulberry bark (very inferior, however, to that now made in Fiji); a tippet of soft *round* scarlet and yellow feathers; and some *leis* of the *pointed* or royal yellow feathers, which is so valuable.

As we were leaving the house, two ladies-in-waiting requested us to sign our names in an autograph-book, and decorated us with *leis* of fragrant white flowers.

Yesterday I had the honour of being invited to meet Queen Emma at luncheon, with Mrs Blackburn (whose husband is one of the Bishop's clergy); and again in the evening, when Mrs Wodehouse invited us to a cosy tea-dinner. Mr Wodehouse had just received a tin case containing excellent engravings of Queen Victoria and every member of her family (with the exception of the Crown-Princess). This was a gift from the Queen to Queen Emma, who had the case opened immediately—partly, I am sure, that we might share her pleasure in seeing its contents.

This is my last day in Honolulu. To-night one of the inter-insular steamers starts for Hawaii, and I have taken my passage to Hilo, *en route* to the Great Volcano. Many kind people have called, and have given me letters to their friends, and done everything they could think of to add to my enjoyment in every way.

Now I must make final preparations, so good-bye.

CHAPTER IV.

A HAWAIIAN VOYAGE—ARRIVE AT HILO—A POI FEAST—"FATHER COAN"—TIDAL WAVES.

ON BOARD THE LIKE LIKE,
IN HILO BAY, *Oct.* 16*th.*

AFTER a most unpleasant passage of three days and two nights, in really rough weather, we arrived here early this morning; and now I am waiting, somewhat impatiently, to see what will happen next. All the other passengers were dropped at different points along the coast, so that when we arrived here, there remained only the King's band, who have come to serenade the good folk at Hilo, on the occasion of some native festival. They went ashore at once in the early dawn; but as, in the absence of any hotel, I did not know where to go or what to do, I thought it best to stay where I am, especially as it is raining heavily.

I know that Mr Severance, the Consul for Hawaii at San Francisco (whose acquaintance I had the pleasure of making last year in the

Yō-Semité), has written to commend me to the kind care of his brother, who is sheriff here. So also has his sister, Mrs Parke, and various cousins, with whom I travelled from California to Honolulu. So I have little doubt that a kind welcome will be extended to me in due time. Meanwhile a quiet hour on board does not come amiss.

This has been a curious addition to my large experience of voyages. The three last have been on a rapidly descending scale of comfort. On the 20th of last month, I arrived at San Francisco from Japan in the magnificent City of Tokio, 5500 tons. Thence to Honolulu in the City of Sydney, which, though smaller, is also a fine ship. And last comes the Like Like, a very good little vessel for her work, though not luxurious as regards her passenger accommodation. By the way, she is named in honour of the King's sister, Princess Miriam Like Like, who is married to Mr Cleghorn, an American.

I have travelled in many curious varieties of ships, but nowhere have I found so strange a medley as has been crowded together on the deck of the Like Like for the last three days. The only berths she owns are ranged in a double row round her saloon, where the regular meals are served for such as choose to attend them. But the Hawaiian passengers prefer to carry their own provisions;

and stranger than any picnic are the meals consumed by each family-party, as they squat in merry groups on their mats, which they have spread on deck.

A large bowl of *poi* is the inevitable centre-piece, into which all present dip promiscuously, drawing out a finger thickly coated with the very adhesive sour paste, which, by a series of most scientific twirls, is safely landed in the mouth.

From baskets of plaited palm-leaves, and wrappings of silken banana-leaves, are produced raw fish, dried octopus, pieces of roast-pig — possibly dog—cooked *taro*, and long sticks of sugar-cane, occasionally a bread-fruit (but these are not abundant in Hawaii), bunches of oranges and bananas, and sometimes wonderful-looking oily puddings, and sweetmeats.

All these were eaten with hearty appetite; and (I grieve to mention it) the travellers being bad sailors, and the sea rough, consequences were unpleasant. Nevertheless, with undaunted courage, the sufferers very quickly resumed their repast, which seemed to go on at intervals all day, and even through the night.

If there was no other food on hand, chewing sugar-cane was an endless resource; but as the refuse-fibre did not always reach the sea, it was not an agreeable addition to the cleanliness of the deck.

Besides the baskets of food, each party was surrounded by a litter of personal luggage—bedding, pillows, shawls. Several of the girls carried pet dogs, and both men and women had wreaths of large bright flowers round hat and neck. Those whose friends had come to see them off were half smothered by the number of these fragrant *leis*, with which they had been adorned by loving hands; and the heavy scent of gardenia, tuberose, jessamine, and orange-blossoms, would have been almost overpowering but for the fresh sea-breeze, with its own invigorating iodine.

As it would have been quite impossible to occupy the berth I had secured down-stairs, I followed the example of all my neighbours, and accepted the offer of the kindly steward to spread my mattress on the middle deck, where I shortly found myself one of a closely packed mass of miserable humanity, all mingled promiscuously—men, women, and children, brown, white, and whitey-brown—all laid out in rows, and almost all violently sick. It was a horrible scene.

The upper or hurricane deck of the Like Like is large and commodious; and as an old traveller and good sailor, and moreover somewhat ungregarious, I should have preferred on this occasion, as on many others, to find a nook for myself on its breezy and solitary heights; but, for the first time in all

my travelling experience, I found the captain of the vessel so churlish and coarse-mouthed, that I deemed the horrors of "the middle passage" the least evil of the two.

I found the mattress next to mine occupied by his Excellency John Owen Dominis, Governor of Oahu and Maui, an American, the husband of the Princess Liliuokalani[1] (commonly called Princess Lydia), who had kindly commended me to his special care. It was a mercy to have one neighbour who was not sea-sick; and a further boon when, observing that a Hawaiian woman lying at my head was painfully so, he made her remove to his other side—an act of true Christian charity, so far as I was concerned.

In that mixed throng lay American ladies, half-breed cattle-drivers, sugar-planters, and Chinamen. I was struck by the great kindliness of every one, even under such adverse circumstances, all ready to make the best of their miseries and of their neighbours. And a party of men with lovely voices beguiled the tedium of day and night alike, by frequently singing very pleasant native choruses.

We called at many ports along the howlishly dreary volcanic shores of Isle Maui, and then of

[1] King Kalakaua's eldest sister, who filled the office of Regent during his absence in Europe in 1881.

Hawaii. It may be that the stormy weather made them appear more dismal in my eyes, but to me the settlements seemed to be for the most part merely groups of native huts or poor wooden houses, clustered on cinder-heaps. I never saw a more distressingly ugly coast.

As seen from the sea, Maui is a pile of red, scorched-looking, bare volcanic hills, seamed with what have once been rivers of molten lava, and are now beds of black, rugged, cruel-looking rock, lying in horrid masses for miles along the shore. These are old lava-flows. Between them lie stretches of the blackest lava-sand, with here and there a bank of white coral-sand; and the only representatives of vegetation are the mournful *pandanus*, with blue-green drooping leaves, or that most unlovable of all tropical plants, the weird, grey prickly-pear.

I am told that there are some pretty and pleasant spots to be seen even on these shores, and delightful depths of cool tropical green in the deep chasms of the hills; but either they are not visible from the sea, or we passed them in the night, which is highly probable.

I cannot say much more for the picturesque beauty of Hawaii, which rises from the waves like a vast fortress, ninety miles in length, entirely built up by the fire-genii, whose materials were

lava of every known description. The centre of the isle is a most desolate high plateau, from which rise the three great volcanoes — the ever-active Mauna Loa, and the extinct or dormant Mauna Kea, and Hualalai. Yet dreary as it appears from the sea, I am told that there are wonderfully fertile tracts all round the isle, wherever water can be obtained. There are great sugar-estates and cattle-ranches and sheep-runs, while thousands of wild cattle roam at large through the forest-belt which clothes the lower slopes of the mountains.

Of these, vast herds are literally wild,—the descendants of those brought here by Vancouver, and turned out to increase and multiply under State protection. They are now so fierce that the natives stand in considerable dread of them, and give them a wide berth in the forest, where they are said to do considerable damage to the timber.

Besides these purely wild herds, there are immense numbers which have nominal owners, who at some period or another contrive to drive them into a corral and brand them with their own mark. Some of these ranchmen have runs upwards of twenty miles in length, and are nominal owners of from 10,000 to 15,000 head of cattle.

It is no child's play to collect a drove of these creatures, which, when hunted, are half maddened by fear. So it is no wonder that an average of

fifty horses a-year are gored to death in this dangerous but most exciting work,—sport, I may call it, for no form of sport can be wilder or more exciting than that of galloping for hours in pursuit of an infuriated herd of raging, dangerous beasts, the first of which are singled out and captured by means of skilfully thrown lassoes. Then indeed comes the tug of war—might against might—the captive bullock dashing madly to and fro, rushing at the horses, which, well trained to their parts, evade his charge with almost miraculous skill, till, after a prolonged struggle, the poor savage is exhausted, and his captors succeed in drawing him up to some point of vantage where they can give him the *coup de grâce.*

Sportsmen are looking forward to a day when the deer-forests of Hawaii shall become a reality; nor is there any reason why they should not do so. Deer have been turned out on Mauna Loa, and there seems every reason to hope that they may increase and multiply as the cattle have done.

Of these, multitudes are shot merely for the sake of their hides; but the value of their flesh is infinitesimal, owing to the difficulty of carrying or preserving it in hot weather. It does seem so pitiful to think of the hungry people to whom this good meat would be such a boon!

Less exciting property are the great sheep-runs

on the slopes of Mauna Kea, on high breezy pastures. Of course they do not compare in figures with the huge flocks of "the Colonies." Still a man who owns from twenty to thirty thousand sheep has a fair claim to rank high in the pastoral community. It may interest "Donald" to learn that last year (1878) the wool export from these little isles was 522,757 lb. It varies considerably for better or worse year by year.

At present, however, all golden visions centre in sugar. In the way of business little else is talked of: the relative value of different kinds of cane, the density of their sap, the ravages of rats or of insects, the rise or fall of the American market,—and so on.

A break between the showers has just revealed this bay of Hilo in a much more attractive light, and I can see that my first impressions of Hawaii may require modification—though the background of huge hills appears to me singularly dull (for I cannot help contrasting these bare and shapeless mountains with the exquisite forms and rich beautiful vegetation of the South Seas). I see that here the country is all green—very green (indeed the colour beyond the town is so brilliant that it must certainly mean sugar)—and only the church spires and tower reveal the existence of a town or village embowered in foliage; but all the cocoa-palms look

weather-beaten. I am sorry to see that the shores of the pretty semicircular bay apparently consist of the hideous black volcanic sand which I noticed farther along the coast. Here there appears to be no coral-reef, for the waves are sweeping violently to the shore, and breaking in showers of white surf.

I have just received an invitation from the first engineer to go ashore under his escort, and spy out the land. He is a kind, pleasant man, and well known here. He showed me a photograph of his pretty wife on the face of his watch—a graceful device, and a continual reminder of home.

HILO, *October 17th.*

We had some difficulty in landing, owing to the heavy surf, which sometimes is so violent that the steamer has to discharge her cargo and passengers at a point two miles farther—and sometimes she cannot discharge cargo at all!

We were met on the wharf by Mr Severance, who (adding to his other offices that of postmaster) had to apportion the letters of the community ere reading his own, and had just found those commending me to his care.

A few moments later found me safely housed under his most hospitable roof, and heartily welcomed by his charming wife and mother. Friends

from whom I parted in Yō-Semité are also here, just returned from the Volcano, where they say the Lake of Fire is in splendid action, surpassing all their expectations.

Yesterday there was a great gathering of the natives here, so the village was unusually animated. The great feature of the day was a *poi* festival, to which we were all invited. Having visions of romantic feasts in Tahiti, I was prepared for something similar in Hawaii; but in this, as in everything else in this group, the strides of business-like American civilisation have toned down the picturesque element.

The feast was spread on long wooden tables in a wooden shed, rudely decorated with green boughs and flowers, and we all sat on long wooden benches. Of course this was much more sensible than sitting on damp grass, under a thatch of fern-leaves and bananas; but under the circumstances, it did not seem so natural to eat with our fingers, which is an essential feature of a *poi* feast.

I think I have already explained to you that *poi* is a sticky paste prepared from the large beetroot-shaped root of the *taro* (which is here called *kalo*).[1] The roots are baked in underground ovens, and are then ready to be eaten in their simple form (you must remember how often I spoke of them as one of

[1] *Arum esculentum.*

our principal articles of food in Fiji).[1] In Tahiti, the Marquesas, and Hawaii, they are then placed in a wooden bowl, or on a scooped-out board, and are pounded with a stone pestle. This is always done by men, as it is very exhausting work (the root being waxy and close-grained); and I am bound to confess that they do not look nice when they are at work, for they reduce their raiment to a minimum, and even then are always in a state of very moist heat.

When the *kalo* is to be reserved for future use, it is then packed in dracæna-leaves in its dry state, and can be kept for months. In this form it is known as *paiai*. To convert it into *poi*, water is added, and it is kneaded into a smooth paste, and then left for several days to ferment, when it acquires a rather agreeable, slightly sour flavour. The best *poi* is made from pink *taro*. The root which we generally ate in Fiji was of a mottled bluish-grey; the art of *poi*-making is there unknown.

On these Hawaiian isles twenty-eight varieties of *kalo* are grown, their colour varying from white to pink. A good average root is above a foot in length, and six inches in diameter. They are grown on little hillocks of clay—every root its own hillock—in little shallow fields of puddled mud and standing water. The leaves, which re-

[1] At Home in Fiji. By C. F. Gordon Cumming.

semble those of our hothouse caladiums, seem to rise from miniature lakes; so that a *taro*-patch is a pretty object, though as unpleasant to the cultivator as rice-planting.

The work of making *poi* constitutes a trade by itself. In Honolulu it is sold in calabashes in the street; and wherever you see a little white flag hanging from a native house, you may understand it to mean, "Good *poi* sold here."

The present feast is got up by the *poi*-makers and *poi*-dealers of Hawaii to give an impetus to the trade. It is a most business-like proceeding, as every invited guest is requested to bring a present of money to meet the expenses of the feast. I believe we were each expected to give a couple of dollars; but as Mr Severance made an offering so generous as to frank all his party, this is a point on which I am not qualified to speak.

All the *poi*-dealers appeared in uniform—namely, a bright Albert blue shirt, with white trousers, and necklaces of yellow flowers. The ladies who carried in the feast and distributed it were dressed, to match the men, in bright blue *holukus*, and similar *leis* of yellow blossom.

We were each supplied with a large lump of meat (I had a lump of pig and a lump of beef), wrapped in cooked *taro*-tops, which are a very delicate form of spinage. Each person was further

supplied with slices of cooked *taro* and other vegetables, and a bowl of pink *poi* was set between every two persons. Bowls of water were placed at intervals along the tables, that all might frequently wash their hands.

To eat *poi* properly and gracefully (?) is an art very difficult to acquire. Two distinct methods are recognised by laws of etiquette. You eat one-fingered *poi*, or two-fingered *poi*. I find the former is the most easily acquired. You dip a finger into the bowl, draw it out thickly coated with paste, give it a scientific twirl, and suck it. Then repeat the process. The paste is so intensely adhesive that no particle which has touched one person's finger can ever escape to mingle in the general mass, so that the fact of several persons eating from one bowl is less nasty than it sounds.

I shared my bowl with one of our own party. For *vis-à-vis* we had a very dandified Americanised Hawaiian, with a pretty half-caste wife in very pretty American full dress. But happily, all the pure Hawaiians adhere to the simple *sacque* of bright-coloured calico. To-day, in honour of the festival, almost every one wore fresh *leis*, and it was satisfactory to observe that the abominable fashion now started in Honolulu of wearing *leis* of artificial flowers has not yet been introduced here.

At best a flower *lei* does not look half so pretty

as you would expect, for it is simply a rope of blossoms strung into one another, as you could imagine stringing a thousand primrose-heads to make a necklace, thereby losing the beauty of each. The very idea is painful. A *lei* greatly in favour is made from the *mailé*, a sweet-scented creeping vine, not at all showy, and I do not think it has any blossom worthy of note.[1]

I believe that the truly correct food at a Hawaiian feast should be baked dog. Here, as on all the Pacific isles, there were literally no indigenous animals, except a small rat, a lean long-headed pig, and a hideous little dog with erect ears. Consequently the greatest dainties at royal festivals were the hoggie and doggie dishes. As soon as Vancouver's cattle had duly increased, shooting-parties were organised by white men and brown, and beef became abundant, and so continues to the present day.

But as a matter of choice, the Hawaiian *gourmet* inclines to dog, or at least he did so till very recently,—nice little dogs about the size of a terrier, and fed on vegetables. Dog's flesh was accounted much more delicate than pork or kid, and in old times (perhaps to this day) every tenant renting land was obliged to rear a given number of dogs for his landlord's larder.

Mr Ellis, in speaking of this curious predilection,

[1] *Alyxia olivæformis.*

as compared with the supremacy of pig in other groups, tells how, in the Society Isles, he had seen fifty large baked hogs served with vegetables in proportion; but on coming to the Sandwich Isles, he saw nearly two hundred dogs cooked in one day; and that when the king and queen of Kauai came to visit Kuakine, the *menu* consisted of four hundred baked dogs, with fish and hogs and vegetables in abundance.

On such great occasions each dog or hog was brought in a separate basket, and each kind of food was piled in distinct heaps for easier distribution among the guests; but, as a general rule, the good things were deposited on layers of large green leaves, and cut into portions with a sharp-edged piece of newly split bamboo, which was the only knife known, and a very good substitute for steel—one which I have seen in use many a time, to cut up the baked pigs presented to us in Fiji.

On the present occasion, having duly consumed a certain amount of the pig, beef, *taro*, and *poi*, we were each supplied with a huge slice of excellent pink-fleshed water-melon, brought here by the steamer; and so ended a somewhat lugubrious and very unpoetic feast. It had, however, a pleasant accompaniment of charming music, as the King's band played exquisitely, Mr Burger, the excellent German bandmaster, leading vigorously, though still

pale from exhausting sea-sickness. This is a treat which the Hilo people have not enjoyed for five years, since the band came here with King Lunalilo the well-beloved, during his short reign of one year.

At the close of the feast, we went down to the shore to see how the natives managed to amuse themselves. The weather being still showery, we all took shelter in a large open timber-shed close to the shore, as did also a large number of Hawaiians, their brilliant colours conveying a happy suggestion of the tropics. Presently a very fine-looking man and woman, whose merry recitations and songs had greatly charmed the crowd, recommenced their performance; but apparently the words must have been unseemly, for the owner of the timber-yard ordered them to leave his premises at once, which they immediately did, followed by their particular clique.

Though the *poi* feast had by no means sharpened our appetites, we had to return here to dine at four o'clock, an hour made necessary from the fact that native servants go home at five, and do not return till eight o'clock next morning; so whatever household service is required in the interval, is performed by the ladies of each home.

Afterwards a considerable number of friends dropped in, including some who had ridden in

from the neighbourhood to hear the band, which took up its position at the Court-house, in the garden next to this; so we all sat in the verandah and enjoyed really good music, till, unfortunately, the rain drove the musicians indoors. They had previously sung some very pretty part-songs.

Amongst the friends who composed this pleasant little gathering was one whose name has long been familiar to us, as that of a most zealous apostle of Christianity in these regions — one of the most energetic and successful Fathers of the Hawaiian Mission. "Father Coan," as he is here called, both from personal affection and reverence for the years he carries so bravely, is now venerable in every sense, both by reason of his silvery locks and of noble work done in past years. He has seen all the changes of five reigns, having lived to see four Hawaiian monarchs buried, and a fifth crowned.

He is a man of commanding presence, a circumstance which doubtless carried some weight with the wild beings amongst whom he toiled, to such good purpose that the people of Hawaii are now probably far nearer being Christians than are the bulk of "the masses" in Britain.

His life began with the century. He was born in Connecticut on February 1, 1801. His father was a New England farmer, and the son had no advantages but such as were afforded by the

ordinary country schools. But he soon excelled his fellows mentally as well as physically. He was noted for his great strength,—the ease with which he could lift a heavy barrel of flour on his shoulders, and similar feats. He became a noted athlete; and when a company of militia was formed in the district, young Coan very soon rose to the rank of captain. This military training stood him in good stead in after-years.

At that time New England was greatly moved by the earnest revival-preaching and fervid eloquence of a famous evangelist, Asahel Nettleton. Great crowds everywhere gathered to hear him, and amongst those most deeply impressed was his own cousin, the young athlete of Killingworth, who was then about thirty years of age.

Ever prompt and decided in action, he had no sooner resolved to make a positive stand in the Christian life than he determined to devote himself to the ministry, and in 1831 entered the Theological Seminary at Auburn.

Two years later, he was invited by the Board of American Missions to start with one companion on an exploring mission on the western coast of Patagonia, which was then an almost unknown land. Domestic cares seemed at first to forbid his acquiescence, but, on consideration, he agreed to go. Circumstances, however, made it impossible at that

time to obtain a passage to the western coast, but a far more uninviting field was offered on the eastern coast, with the pleasing intimation that the tribes of Eastern Patagonia were fierce savages of gigantic size, and cannibals withal.

Unwilling to abandon the idea of commencing this mission when the idea had once been fairly started, Mr Coan and his coadjutor determined to proceed and see what could be done. For nearly a year they managed to live amongst these wild tribes, undergoing all manner of dangers and hardships, but finally came to the conclusion that the people were untamable, and that as a mission-field the land was singularly unpromising.[1] So they returned to the United States for further instructions, with the result that, when, a few months later, Mr Coan had married the love of his youth, Miss Fidelia Church, he and she were despatched to join the newly commenced mission in Hawaii, where, during so many years, they have worked with such marked success.

Mr Coan is not only endowed with much mother wit and humour, but with a keen shrewdness that has well balanced his natural overflowing kindliness. He mastered the language so rapidly that in three months he was able to make himself well

[1] Adventures in Patagonia. By the Rev. Titus Coan. Published by Dodd, Mead, & Co., New York.

understood by the Hawaiians, and to begin teaching. Having some skill as a doctor, the people flocked the more readily to hear the words of one who was always ready to help them in every way; so that a wonderful influence was acquired, which led to the rapid spread of Christianity in this island.

I have already heard many details of this work, and some day will tell you all about it.

The present Mrs Coan was a daughter of Mr Bingham, another name very familiar in the early history of the Mission; so that these, and other friends here present, form links connecting us very closely with the days of darkness which they remember so well, though they now appear lost in a distant past.

This house has that best of luxuries in the tropics —a bathing-house, containing a large cement tank, through which a clear stream flows constantly, passing out thence to water the garden and field. This morning-bliss having been duly enjoyed, I joined my Californian friends in a raid on the strawberry-guavas—a charming little guava no bigger than a wood-pigeon's egg, and of a delicate yellow.

Then the band played again, and we sat and listened. Never was a band blessed with more attentive hearers: each note was precious.

After luncheon the steamer started on its return

voyage, and we escorted our friends to the wharf. The band re-embarked, together with a crowd of natives returning from the feast. All their friends, of course, came to see them off; and there was much sniffing and smelling in lieu of kissing, and some weeping. All the foreign inhabitants had assembled to speed the parting of a newly married young couple who thus commenced their wedded life. Remembering our voyage from Honolulu, I can but say, "Poor young couple, to start on so horrible a honeymoon!"

At a short distance from the beach, Mr Severance pointed out to me a zinc plate, let into a cocoa-palm, at about five feet above the ground. It marks the height to which a tidal wave rose on 10th May 1877. The sea suddenly rose at 5 A.M., and continued till the following morning, rushing in, and then receding, once in ten minutes. A terrible cry from the beach carried the tidings of destruction to the half-awakened sleepers on the hill, who rushed down to lend what aid they could, and met their dripping friends, who had escaped with their lives from their ruined homes, when the awful wave rushed in and overwhelmed them. About fifty houses were destroyed and five lives lost, besides serious injury to many persons. The bridge at Waiakea was carried away; and, strange to say, the little church was moved bodily for a

distance of about two hundred feet. It travelled with much dignity, tolling its bell as it went, and was scarcely injured at all, while one of the principal houses beside it fell in total ruin.

This wave does not appear to have been seriously felt on the neighbouring isles; but news was subsequently received that there had been a fearful earthquake at Iquique, in Peru, at 8 P.M. the previous evening. So—the distance being about 8000 miles—the earthquake wave is computed to have travelled at the rate of 450 miles an hour.

There are records of various tidal waves which have done more or less damage in past years. In 1841 the water suddenly receded from Honolulu, leaving the harbour partially dry and the reef bare. It quickly returned, but again rushed out. This little freak occupied about forty minutes, after which the sea was calm as before. At the same moment the tide suddenly rose at Lahaina, on Maui, at a distance of a hundred miles. It rose and fell repeatedly at intervals of four minutes, rushing over the reefs with furious noise. It was afterwards reported that a similar phenomenon occurred on the coast of Kamtchatka at the same time.

But the most remarkable event of this sort happened on the 7th November 1837, and is still vividly remembered by many of the older inhabi-

tants. It was felt throughout the group, but most seriously on Maui and Hawaii, where it destroyed much property and a good many lives.

No indication of anything unusual had been marked by either barometer or thermometer. Honolulu lay bathed in peaceful sunlight, when suddenly, at five in the afternoon, the sea was observed to be rapidly retiring from the harbour. It fell eight feet, leaving the reefs entirely dry. The amphibious natives thought it all rare fun, and followed the waters to collect the stranded fish. Some vessels grounded; but the sea quickly returned, and in half an hour rose to the highest tide-mark. On a second recession it fell six feet, and then returned; and this it continued to do, with gradually decreasing force, till noon on the following day.

At Maui the sea retreated in the same manner, and at Kahului and other places the people followed it, wondering, when suddenly it turned upon them, and, forming an immense wave, like a wall of waters, it rushed shoreward, sweeping all before it, destroying whole villages—houses, canoes, and all manner of property. The people were, of course, buried in the surf; but the majority contrived to come to the surface alive, and escaped with the loss of their property. The dismal wail that rang along the beach carried the evil tidings to the villages far inland.

Here the scene was even more terrible, because it happened at the time when about ten thousand persons had assembled here for religious instruction. A long day had been spent in church services, and the people had either gone home to rest, or were gathered in groups on the shore, when suddenly, about 6.30 P.M., just at sunset, the sea commenced retreating at the rate of five miles an hour. The natives rushed eagerly in crowds to see this strange sight, when suddenly a gigantic wave formed, and rushed towards them at the rate of seven or eight miles an hour, with an appalling roar. It dashed right into the village, rising twenty feet above high-water mark, and broke with stunning noise, like a heavy thunder-crash. Mr Coan says that from his house on the hill the sound was "as if a heavy mountain had fallen on the beach." Then arose wild wailing cries of unspeakable anguish and horror. Men, women, and children, the old and the helpless, were struggling in the flood, amid their wrecked homes. Property of all sorts—clothing, food, domestic animals, floating timbers—were swept out to sea; not a canoe escaped.

Some who were safe on shore rushed down, in time to plunge into the billows and save others, who were wellnigh drowned; but so violent was the suction, that even strong swimmers could make little way, and some sank exhausted. Many were

saved by the boats of an English whaler which lay at anchor in the bay. As the wave rushed inland it had dashed over her; but as soon as the crew recovered from the shock they lowered their boats, and exerted themselves to the uttermost to rescue the natives, who, stunned and insensible, were floating rapidly to sea. It was a fearful night of anguish and suspense, not knowing who were altogether missing, or who, among the half-drowned, might possibly be recovered. The lesson taught them that day had been awfully emphasised. Mr Coan had preached from the words, "Be ye also ready"—a verse never likely to fade away from their memories after that terrible hour. All the little property of these poor people was gone, even the stores of food which had been garnered near the beach.

It was specially noted that there had been no shocks of earthquake felt, nor any other premonitory symptoms, except that the crater at Kilauea had been in very violent action on the previous night. From the fact of the tidal wave having swept so many isles at the same time, and from apparently the same direction, it was supposed to have originated at a considerable distance; but no disturbance likely to account for it was reported from any quarter.

CHAPTER V.

SUNRISE ON MAUNA KEA — THE PATRIARCHS OF HILO — VEGETATION — USE OF LOCAL TERMS — SURF-RIDING — TOBOGGIN — PEI-PEI AND A-NUE-NUE FALLS — GLEE-SINGERS — ANCIENT NATIONAL MUSIC AND DANCES.

HILO, 18*th October*.

EARLY to bed means early to rise here; and last night Mr Severance promised to be earlier than ever, to accompany me on a sunrise ride. So the horses were caught overnight, and we were up at 5 A.M. Helen Severance, a nice bright girl of about twelve, helped her father to saddle the beasts (for there are no grooms or stable-boys here!); and after a hasty bite of cold meat and a glass of lemonade, we started, and rode along the crescent-shaped beach in time to look back at Hilo while the broad slopes of Mauna Kea and Mauna Loa still glowed like vermilion in the light of the rising sun.

Too soon this morning glory faded to the light of common day; but the point we had reached proved

so inviting for a general view of the village, that I decided to remain there and sketch—Helen bearing me company, while the sheriff returned to his manifold duties.

First, in order to secure the best outline, we took up a position on the beach, on a bank of ugly black lava-sand (which, by the way, is good fertile soil, and densely carpeted with the lilac marine convolvulus common to all these Pacific groups). Then as the heat of the sun grew more and more intense, we retreated beneath the shade of a huge old almond-tree, in front of Governess Ruth's house.

Her proper name is Princess Keelikolani. She was half-sister to the last of the royal dynasty of the Kamehamehas. She is a lady of vast proportions, altogether in accordance with the typical ideal of what a Hawaiian chiefess ought to be. But I am told that she dances with an airy lightness that is truly wonderful, and that she devotes much care to the consideration of her rich Parisian toilets, including evening dress, *très décolletée*. She is at present visiting one of the other isles, so I fear that I shall not see this genuine chiefess.

We remained at our post till past noon, Helen devoting herself to the care of the horses, with which she is quite at home. She unsaddled mine and saddled it again unaided, tightening girths and

so forth. At present she herself rides a picturesque Mexican saddle, in true native style; but it has now been decreed that she must adopt the side-saddle of civilised life — a sad symptom that the happy days of childhood are passing away.

This evening, after the usual four-o'clock dinner, my host and hostess took me to call on Mr and Mrs Lyman ("Father Lyman," as he is always called). They are the true patriarchs of Hilo, having been working here for fifty years! They had been already established here for some time before the arrival of Mr and Mrs Coan, when they were the sole representatives of the white race, and the only Christians on the island, to say nothing of being the only people who could well be described as clothed!

In those days the women of Hawaii wore only the *pa-ù*, which was a short kilt of the native *tappa*, while the dress masculine was that scanty and most ungraceful strip of cloth known as the *malo*. Of course high chiefs displayed their wealth by wearing feather cloaks and capes, and richer draperies of *tappa*; but I speak of the people generally.

Now this patriarchal couple have lived to see almost a generation of their earliest converts pass away; and their own children's children, and those of their early pupils, now surround them, and love

to hear from their lips the stories of the olden days, which sound like the legends of some far-away country, so totally have all the conditions of life changed.

Father Lyman is a noble-looking old man, with glossy pure white hair: as the light plays upon it, it seems to me to form a crown of glory befitting an aged saint. His sweet pleasant wife entertained me with delightful old-world talk, and showed me a most interesting cabinet of every variety of lava-specimen and similar treasures.

Then we walked home by the light of a young moon, and sat in the verandah listening to very pretty choir-practice next door, at young Mrs Fred. Lyman's house, which is only divided from this by a belt of luxuriant shrubs, plantain-trees with gigantic green leaves from five to eight feet in length, and the very tallest sugar-canes I have ever seen — ginger-plants with their clusters of pale-pink wax-like blossoms, roses, jessamines, and lilies.

All houses here are alike embowered in delicious shrubbery: the constant heavy rainfall for which Hilo is proverbial gives all that the virgin volcanic soil craves, to make it fruitful; and so trees and shrubs have but to be planted, and protected from insects, and they are sure to thrive. So all the ordinary forms of tropical vegetation are to be

seen just round the village, and in some cases are growing luxuriantly.

By far the most remarkable plants here are two magnificent clumps of bamboo, in this garden, which were only planted seven years ago by Mr Severance, and are already as fine as the bamboos of the Dehra Doon in Northern India, or those at Peradenia in Ceylon, which are the finest I know. They are far superior to any I have seen in the South Pacific. A third magnificent clump grows near Governess Ruth's house; and I marvel why a tree which is so evidently the most suitable to the soil, has not been more largely planted. A tree new to me, but very attractive, is the rose-apple, which bears a delicious fruit, the taste of which is like the scent of sweet roses.

Bananas grow well here, and fifty-seven varieties are raised in different parts of the group. They always form a pleasant feature in any scene, from the beauty of their great glossy, banner-like leaves, and rich pendent clusters of fruit. No product of the tropic is a greater boon to a housekeeper, as a bunch of bananas hung in some convenient corner of the verandah offers a nutritious and satisfying morsel to any friend who chances to be inconveniently hungry at irregular hours.

The mango-trees of Hawaii are not a great success. They are poor, with a flavour of turpen-

tine, and a large stone, out of all proportion to the pulp; but I fancy that this is solely due to lack of care in importing the original plants. The trees themselves are very fine, and doubtless good kinds of mango might readily be introduced by grafting. There can be no reason why Hawaii should not produce as good fruit as Tahiti, to which the mango was first introduced by the French from Rio Janeiro about twenty years ago. Immense care was then taken to introduce only the best kinds, and great pains have been expended on bringing them to perfection—a care amply repaid in the magnificent crops of many most delicious varieties, which now form an important item in the food of the people.[1]

Although imported trees and shrubs seem to take so kindly to this soil, I cannot say that I am happily impressed by the indigenous vegetation. It almost seems as if the natural products of the soil were doomed, like the people, to fade away. The forests of sandal-wood have disappeared before the woodman's axe; but how are we to account for the sickly look of the cocoa-palms, and the miserably unhealthy appearance of the few stunted bread-fruit trees,—most miserable representatives of the bread-fruit of the South Seas? All the trees I have seen are suffering from a blight like smut in wheat:

[1] For particulars concerning the mangoes of Tahiti, see 'A Lady's Cruise in a French Man-of-War,' vol. ii. pp. 279-283.

the leaves turn yellow, and are covered with a black powder, very disfiguring, but which is said not to affect the fruit. In some of the isles it is said that this can be cured by planting the great forest-lily [1] closer to the roots of the diseased tree. Whether true or not, no one here takes the trouble to try the simple experiment.

Sunday, 19*th*.

This has been a wild stormy day, with heavy rain. We just managed to get as far as church in the morning, by a road deep with black mud. There are three churches in the village: a large Roman Catholic church painted white, with two square towers which form a prominent feature of the settlement as seen from the sea; Father Coan's large native church for the Hawaiians; and a small church for the foreign residents, in charge of the Rev. A. O. Forbes. The two latter are Congregational, as is also a small church on the other side of the Wailuku river.

The form of service is much the same as in a Presbyterian church, the preacher occupying a large raised seat in a central position. On either side of him are placed two vases of beautifully arranged flowers, which are the special care of two ladies of the congregation, one of whom takes

[1] *Crinum Asiaticum.*

charge of the *mauka,* the other of the *makai* vase, —which, being interpreted, means the vase on the side of the church next to the mountain or to the sea!

We Scotch folk, who bring the points of the compass so freely into common life, and talk of going east or west if we move a hundred yards, or sometimes even in going from one room to another,[1] can fully sympathise with this curious division of all things. If you inquire for a friend, you are either told he has gone *makai, i.e.,* seaward—or *mauka, i.e.,* towards the mountain; and when you take your place at meals, you are invited to sit *mauka* or *makai,* as the case may be. All day long these terms seem to fit in in the oddest way, as do several others, such as *pilikia,* which is applicable to any sort of trouble from the least to the greatest.

After we returned from service, Mrs Fred. Lyman sent me the *makai* vase with its beautiful flowers, that we might have the enjoyment of them for their few short hours of life—flowers do fade so quickly in the tropics. It was a kindly thought, and a most fragrant offering, and here no one objects to this combination of church and home decoration. It is one more indication of the simple,

[1] We know of an old lady who was sorely puzzled whether to put the stamp on the east or west corner of her letter!

unconventional tone which pervades all life in this large happy village-family.

In the afternoon the rain and wind increased to a real storm, and wild gusts swept the shore. I am told that hurricanes are unknown in this group, but I cannot wonder that the cocoa-palms look so wind-swept and ill-favoured.

Monday, 20th.

The stormy weather continues. All night long the wind raved, and rattled every plank or bit of verandah-fitting that it could possibly move. To-day there is a tremendous surf all along the bay, but especially on the reef—which here does not mean a coral-reef such as we generally understand, but merely a long tongue of lava running under water for a considerable distance. It is merely the continuation of the promontory which forms one side of the harbour, and which was created during one of the great eruptions. It is, in fact, simply a lava-flow, which for once has proved of real service to the inhabitants.

Such a day as this affords grand sport to these semi-amphibious people, who look upon the grand green waves as so many wild sea-horses,—a sort of racing stud! Surf-riding was formerly a characteristic sport in most of these groups, and especially at Tahiti, where fifty years ago it was the favourite

pastime of men, women, and children. There, however, it has fallen so entirely into disuse, that during the six months I remained in the Society Isles I never once saw it.

So I was much delighted when, this morning, we were invited to go to the shore to see a party of men indulging in this sport.

Owing to the entire absence of coral-reef, the surf at all times breaks on these shores with prodigious violence. But in stormy weather this is, of course, increased tenfold, and the great green billows come rushing in with overwhelming force. These are the delight of the surf-riders. Each carries a surf-board, which is simply a wooden plank, and raiment is of course almost *nil*. Plunging beneath the first wave, they rise beyond it, and swim out to sea till they meet another, and then another, in each case diving just at the right moment, to allow the billow to pass over them. If they miscalculate by one second, the surf catches them and dashes them shoreward, when they need to be good swimmers to escape being battered on the rocks.

But long practice makes perfect, and many of the surf-riders dive safely beneath each successive wave, till they reach the comparatively smooth water beyond the swell. Then laying themselves flat on their board, they prepare for their exciting

ride. Their first care is to select a winning sea-horse. They calculate that every third wave is larger than the rest, and rushes higher on the beach; so their aim is to mount the biggest billow, which carries them shoreward at almost lightning speed.

The ride has all the excitement of a race; for, should the rider fail to keep his plank at exactly the right angle on the crest of the green billow, he will be overtaken by the breaking surf of the wave which follows, and to avoid this, must again dive beneath it, and swim out to sea to make a fresh start. Should he fail to select the right wave as his courser, and find himself on one of the lesser waves, the result is the same, as it will break ere he reaches the shore, and he must again do battle with the pitiless surf and swim for his life. But the man whose skill and luck are alike good, has a wildly exhilarating race. He lies poised on the rushing wave, apparently in perfect security, with the tumultuous waters and the dashing surf raging on every side.

If he can direct his course towards the sandy beach, the wave will carry him right on to it; but there is always danger of being swept on to the cruel black rocks, where the ablest steerer finds it hard to discern the narrow passages through which the seething waters rush so madly; and often he is

compelled to abandon his trusty surf-board, and again turning seaward, plunge beneath the wave and make his way to some point where he can swim ashore in safety. His surf-board is probably reduced to splinters in a few seconds—a loss which is to him as serious as that of a favourite bat to a cricketer.

The boards most in favour are made from the wood of the Viri-viri,[1] which is very light. It grows in the mountains, and is much used for making fences, as it is a kindly shrub. You have but to stick one of its branches in the earth, and it takes root, and soon is covered with a blaze of scarlet blossom.

A good surf-board is about an inch and a half in thickness, about eighteen inches wide, and eight feet long, and should be slightly hollowed down the centre, and rounded at one end. It is stained black, frequently rubbed with cocoa-nut oil, and preserved with the greatest care, being wrapped up in cloth and hung up in some safe corner of the house. It is called *papa hé nálu*—which means wave-sliding-board—and is so named from the *papa* or sledge formerly used in a game called *horua*, which exactly answered to the toboggin of the Canadians.

A rude sledge of sticks and matting was laid

[1] *Erythrina corallodendrum.*

upon two long narrow runners, perhaps eighteen feet in length and smoothly polished. These were set at such an angle that they were only a couple of inches apart in front, but diverged about five inches at the back. This sledge having been dragged to the top of a gently sloping hill, the player threw himself flat upon it, and guiding his course with wonderful skill, contrived to keep his balance as his frail sledge glided rapidly down the incline. It was a game accompanied by much fun and frolic, but one which could not compare in excitement with surf-riding.

So whenever the wind blows freshly shoreward, the people betake them to the shore, and the sound of their mirth and laughter mingles pleasantly with the roar of the waves. I do not suppose, however, that even *this* delightful sport is kept up with half the spirit of olden days, as early travellers speak of seeing perhaps a hundred persons all riding on one immense billow, some lying flat on their board, and some standing upright, balancing themselves with marvellous skill. To-day one or two men attempted to come in standing upright on their board, but the wind was so violent that they had ignominiously to subside, and be satisfied with lying flat, while the great green waves hurled them forward at lightning speed.

Some were lucky, and were carried right up on

to the sands, but others were overtaken by the white crest of foam, which swamped them and left them behind as it rushed on, when they turned and swam out again, facing the waves, to try their luck once more.

The wind, however, proved more than even they could face, so at last they gave in and came ashore, apparently not much exhausted.

On our homeward way we met a heavily laden timber-cart, drawn by six yoke of oxen, and driven by picturesque Hawaiians in bright-coloured shirts and gay bandana handkerchiefs.

Tuesday, 21*st*.

The storm is over, and the waves are gradually sinking to rest. Nevertheless they still run high, and a number of the natives again went out to enjoy the excitement of surf-riding, which must have been far more enjoyable in the absence of the fierce wind of yesterday. To-day they were able to indulge in gymnastics, treating their surf-boards as circus-riders treat their horses, kneeling or standing and attitudinising, while the swift steed rushes onward.

One came ashore in grand style, and was the hero of the hour; but the others had various adventures, generally getting capsized by the crest of the wave, and bowled over and over in the surf in what seemed

a most alarming way, an occasional glimpse of a black head or a floating surf-board being all we saw, till, by skilfully diving right through the great billows, the experienced swimmers finally reappeared far outside the line of breakers, ready to remount their steeds and once more start shoreward in the wildly exciting race. These people certainly do seem to be wonderfully happy and at home in the water. They occasionally turn their skill to very good practical account—as, for instance, during the awful tidal wave of which I told you, when one man, who was swept out to sea in his wooden hut, had the presence of mind to wrench off a plank, and came back to shore riding triumphantly on the crest of a gigantic return-wave, which threw him high and dry on the land.

Later in the day, I had a beautiful ride with Mr Severance, following the course of the Wailuku river, which has worn its own channel over old lava-beds. First, we came to the A-nue-nue or Rainbow Falls, where the river overleaps a large lava-bubble, which forms a cave behind the Falls. It is a small Fall,—little over one hundred feet,—but is exceedingly pretty. The river falls into a deep pool surrounded by cup-shaped banks, which are richly clothed with luxuriant ferns and dracæna, while a few small trees of the scarlet-blossomed *Ohia-lehua* are sprinkled here and there.

Our destination was the Pei-Pei Falls, which lie about three miles farther. The road thither is a very vague track, over grassy land partly covered with scrub ; and it was so long since Mr Severance had been here, that he had considerable difficulty in finding the spot where we were to turn off. Finally we hit a promising trail, and leaving the horses, scrambled down through deep mud to a green glade where we found many guava-bushes with ripe delicious fruit.

A short distance farther we came to the main fall, which is chiefly remarkable because of the position of a high rock-island just in front of it. Immediately below this lie three circular pools of the sort known as pot-holes, each about a hundred and fifty yards in circumference, curiously worn in the grey basaltic rock.

Though separated by thick rock-walls, and having apparently no connection, bits of wood or leaves brought down by the fall are tossed for a few moments in the upper pool, and then disappear, to be next seen in the calm middle pool, whence the water passes subterraneously, and presently emerges to overleap a singular natural archway, which forms the mouth of a cavern.

It is altogether a curious piece of rock-scenery, the peculiar forms here taken by the bed of columnar basalt suggesting the probability of the river

having formed its present channel ere the volcanic rock had found time to cool, and having thus induced curious curves and contortions.

Retracing our way through the bush (chiefly by tracking the guava-cups we had dropped), we again struck the trail, found the horses, and enjoyed a pleasant ride home.

This evening the Hilo choir came to serenade us as we sat in the verandah enjoying the fresh sea-breeze. Though the *himénes* of Tahiti have rendered me fastidious in the matter of glee-singing, these minstrels of Hawaii delight me. They are, however, too much inclined to favour foreign music; and I fear they thought me guilty of bad taste for preferring their own exquisitely plaintive national airs, which have a wild melancholy strain of infinite pathos.

They sing in chorus or in parts, and their harmony is perfect. While one sings the air, others strike in with thirds and fifths; one sang tenor, and some were told off to repeat one deep booming bass-note as a throbbing accompaniment. There were some most musical quartettes and trios. The true native airs here, as in most other countries, are pitched in sad minor keys; and to-night their echoes seemed to blend melodiously with the low moaning murmur of the waves breaking on the dark volcanic shore.

It is evident that the habit of singing in parts was indigenous both in these isles and in Tahiti, as it was specially mentioned by Captain King, and was made a subject of hot discussion among the great musical authorities of the day, who could not believe it possible that a semi-barbarous people, untrained in the mysteries of "concord and counterpoint," could possibly have discovered how to harmonise their melodies so as to produce a full chorus. Notwithstanding the objections of these musical theorists, it is certain that the islanders of both these groups do sing most tunefully (though the palm must certainly be awarded to the Tahitians).

In old days the profession of a minstrel ranked as high here as in Wales. It was a hereditary office like that of the orators, who were employed as spokesmen on all public occasions of special interest. The bards, some of whom were blind, were the living archives of the isles. From father to son were handed down the songs and legends which constituted the history of Hawaii-nei, and their sole occupation was to preserve these, and sing them to ever-willing ears. Thus alone were the annals of the nation preserved.

The songs and recitations were thrown together in short metrical sentences—concise, and always euphonious. The Hawaiian language is so smooth, and contains so many vowels, that it seems speci-

ally adapted to this class of poetry; and the tendency of the singers was to make use of very figurative language, with well-chosen and striking imagery.

The earliest accounts of these isles invariably speak of songs and dances as though both had been in high favour. I cannot, however, learn that either in Hawaii or in Tahiti there were any of those very graceful and artistic dances by highly trained *corps de ballet*, such as delighted us in Fiji. In all these easterly groups the number of dancers appears generally to have been very small, and their efforts by no means artistic.

The only record of a dance on a large scale was one which Vancouver witnessed when he touched at Kauai, where six hundred women, draped in ornamental *tappa*, joined in a graceful posturing while chanting varied and harmonious choruses. He noticed this dance as exceptional, not merely on account of the number of those engaged in it, but because of its refinement, in contrast with the very immodest exhibitions of the ordinary dancers. Here, as in Tahiti, the one dance which seemed to be inborn in the people was the monotonous and very repulsive *hula upa upa*. Perhaps the prettiest descriptions of Hawaiian dances were those given by Mr Ellis, and they were on a very small scale. Where a Fijian *méké* would number several hundred performers, these had but units.

He tells of a party of musicians and dancers who assembled before the house of Keopuolani, Queen of Maui. The orchestra carried in one hand a small stick, and in the other a long one. These they struck together, and beat time with their right foot on a stone. This was all the instrumental music provided. Six women, draped in yellow *tappa*, crowned with garlands of flowers, necklaces of sweet gardenia, and bunches of fragrant *mailé* (which is a favourite scented plant) tied round their ankles, began to dance—very slowly, not always gracefully. For half an hour they continued to posture, while the musicians and dancers alternately sang songs in honour of former gods and chiefs of the isles.

At another place a great crowd had assembled to see the performances of a party of strolling musicians and dancers. The former numbered five persons, each of whom carried a curious instrument formed by two calabashes fastened together, which produced a booming sound when struck with the palms of the hands. Only one dancer appeared. He was girded round the loins with a waistcloth or kilt of yellow *tappa*. His jet-black hair hung in flowing ringlets over his naked shoulders. On his neck he wore the hook-shaped ornament made of a carved whale's tooth, fastened by a vast number of fine braids of human hair. On his wrists were

bracelets formed of boar's tusks polished, and round his ankles jingling ornaments set with dog's teeth. His appearance was undoubtedly picturesque, but his dancing elicited no comment. In the intervals he chanted old legends of former kings of Hawaii, greatly to the delight of his audience.

On another occasion, Mr Ellis found a large multitude assembled to witness a similar performance. On this occasion there were seven musicians, each of whom carried a curiously carved drum, hollowed from a solid block of wood, and covered with shark's skin, on which the orchestra beat with their right hand, while with the left they struck a neat little drum made of a cocoa-nut shell. The only dancers were two interesting little children, apparently about nine years of age—a boy and girl —draped in *tappa,* and wreathed with flowers. They, too, sang songs in honour of the ancient Hawaiian heroes, but their dancing was not thought worthy of remark. It was doubtless the usual unseemly wriggle, in which children were instructed from their infancy.

Now, these picturesque incidents of Hawaiian life are practically things of the past, and every distinctive characteristic of the race is rapidly disappearing, for evermore, before the levelling uniformity of civilisation.

CHAPTER VI.

A SUGAR-PLANTATION—EASY SOCIAL LIFE—LINKS TO THE PAST —HAWAII'S FOREIGN MISSIONS—MAUNA LOA AS AN UGLY DUCKLING.

HILO, *October* 23*d*.

THIS morning I started early, with two very pleasant American girls, to spend the day at Paukaa, Mr Johnstone Austin's sugar-plantation. Our ride lay along the shore, with the blue Pacific on one hand, and on the other, green hills, partly wooded. We first crossed the beautiful Wailuku river, and then a few smaller ravines, which are here called *gulches*,—cool, well-watered, and altogether favourable to luxuriant vegetation.

They appear to have been originally fissures rent asunder in some volcanic disturbance, and now deepened year by year, by the mountain torrents ever rushing through them. Some have almost precipitous banks, and a bed of rough boulders, over which, when the rivers are in flood, the waters rush in boiling torrents. I felt thank-

ful that those we crossed are all well bridged, for such deep rocky rivers are not pleasant to ford even in fair weather, especially on a borrowed horse.

The sun was blazing, and though there was a pleasant breeze, we were not sorry when we reached the plantation, where we were cordially welcomed by Mrs Austin and her daughters, and sat in the cool shade of the verandah, of a home literally embowered in the tall sugar-cane, which waves and rustles on every side,—its bright green leaves and silky tassels gleaming in the bright sunlight, or cutting clear against the cloudless blue of sky and sea.

Each of the girls has a patch of cane which she regards as her especial property—her pin-money, in fact—and great is the joy of the young folk because this year their canes have far overtopped those grown by their father. One of the finest canes was sacrificed in our honour—a truly Hawaiian form of slaying the fatted calf!

Poor cane!—first its crest of green leaves is cut off; then it is stripped of its thick glossy rind, within which there remains a stick of sweet wood about as thick as your four fingers. This is cut up into lengths of a few inches, and is then ready to be eaten, or rather to be masticated, slowly and with some toil. I never can resist chewing sugar-cane, though it is really unsatisfactory, so much

work for so little result, and it is eminently unconversational! Eating sugar-cane sounds very nice, but it really is just like chewing bits of dried wood saturated in thin syrup; and if the cane is very rich in sap, it is apt to dribble stickily.

Hot as was the sun this morning, Mrs Austin tells me that it is often so chilly in the winter months (November to February) that she and her daughters often have to heat bricks to lay under their feet in the drawing-room, and sometimes they even have to take refuge in the kitchen. When they first came here, they supposed that as they had arrived in the tropics there could be no occasion for a fireplace in the house, and now they have done without one for so long, that it does not seem worth the trouble of planning and building one!

After luncheon Mr Austin took us all over the place, and showed us all the details of manufacture, by which, *in one day*, the growing cane is transformed into pure white sugar, including carrying, crushing, boiling, refining, cooking the syrup in great tanks,—in short, all the processes which are required to effect that wonderful change. The refuse molasses are then boiled again, but a longer time is required to reduce them into pure sugar of a second quality, and still longer to obtain a third quality. The crushed cane is left dry as tinder,

and is carried by a tiny railway to a store-house, where it is stacked as fuel for the great furnace which provides steam for the machinery.

An immense deal of labour in carrying the cane is saved by the use of flumes,—in other words, slight aqueducts, which are constructed of timber, and are in use on all the sugar-plantations where water can possibly be made available, in order to float the cane from the upper grounds, right into the crushing-mill. Occasionally the workmen save themselves a walk, and take passage in this strange water-carriage, in company with the logs for fuel, cut in the forests beyond. I heard of one young couple who thus made their wedding-trip to the coast! Rather a damp commencement of their wedded life. I assume that the marriage garments were omitted during the voyage! The principal flume here is three miles in length, extending from the upper plantation, where the vividly green sugar-fields fringe off into the darker greens of the forest.

About three miles farther along the coast, Mr Austin's brother has a much larger mill; but as he and his family are now absent, we had no inducement to go farther, so spent the rest of the afternoon sitting on a ferny headland, overlooking the blue ocean. Below us lay a little cove, to which the sugar-kegs are carried, to be stored ready for embarkation when the steamer comes round.

Saturday, 25th.

I do enjoy the kindly easy social life of this place. There is nothing formal about it, but the most unaffected cordial reality in its friendliness. You will hardly believe me when I tell you that I have been nearly three weeks in these isles, and as yet have literally heard no backbiting! So far as I can gather, this extraordinary state of society appears to be normal. If it really is so, then indeed I have at last discovered something akin to Paradise. I am reminded of the early days, when the words which we so often hear quoted in derision were spoken in truth: "See how these Christians love one another!" Of course I don't expect you to believe this, but it is a fact all the same.

That extraordinary instinct which in Britain seems to prompt people to scatter like a covey of startled birds, and if possible say "Not at home" to a caller, is here unknown—indeed it could not well exist, as some of the family are generally sitting in the verandah, and are ever ready to welcome a guest. In any case, in a country where bells (except church-bells) are unknown, and where servants can scarcely be said to exist, it can never be said that "pampered menials drove me from the door;" for should no one be in the verandah, the

parlour-door stands wide open, and whoever enters is welcomed with pleasant words that have the true ring of reality.

Of course people are not expected to interrupt one another's mornings without some definite reason, but here there are no idle people to rob their neighbours of the precious time they themselves prize so little. I quite acknowledge such to be the true "pestilence that walketh" in the noonday. But in a community where perforce all ladies must take their part in the care of their homes (for there are no housemaids), and in the manufacture of their own clothes (dressmakers being unknown), and who apply themselves to all such needful work as if they enjoyed it, the elastic rules of society arrange themselves accordingly. If people meet in the forenoons, it is for some little consultation about work or cookery, or to plan some pleasant ploy—probably for the entertainment of a visitor, or to exchange books, or some such reason.

The truly sociable hours are after the four-o'clock dinner, when the light work of the day is over, and every one has leisure. Then whoever is inclined for a stroll goes out; and what more natural than to respond to the cheery "aloha" from some pleasant verandah, and turn in to rest by the way?

Then, perhaps, follows agreeable singing; for several houses have pianos, and the community

numbers some pleasant voices, sweet and true. To me it is a never-failing delight to lead the conversation round to the olden days, or to the wonders of lava-flows and earthquakes and tidal waves, into which subjects it always seems to glide easily, and concerning which I hear something new and marvellous from each speaker, as he or she relates personal experiences of life here.

This evening we again went up the hill, and had a long chat with "Father" and Mrs Lyman. They are such a fine old couple, it is quite a privilege to meet such people. Though the weight of years might well entitle him to rest, Mr Lyman continues devoted to the care of a large industrial school for native young men, which he has carried on for half a century. Only think how many carefully trained men he must have started in all these years, to be centres of good in their own districts!

The mornings here are quite delightful—so fresh and balmy. Yesterday I awoke in the clear primrose dawn, and as I was returning from my early bath (in the large cement bath-house with the stream running through it), I was fairly wonderstruck by the glorious transformation before me. The most exquisite crimson light rested on the crater-crown of Mauna Kea and the huge dome of Mauna Loa, while purply shadows lay in the Wailuku valley, and the near foliage glowed like

burnished gold. I could not resist wakening Helen, that she too might rejoice in this glorious "outgoing of the morning." Then we bethought us that we could not do better than ride to the Rainbow Falls. So we foraged in the ever-ready hospitable "safe," and there found bread and cold beef, cocoanuts and Avocado pears, on which we breakfasted, while "the prisoner" saddled the horses.

"The prisoner" is a picturesque appendage of the household. The usual Hawaiian who does the rough work of the kitchen having for some reason taken himself off, the sheriff has allowed one of his evil-doers, a chance of proving himself a useful member of society, which he is doing in a most cheerful manner, dressed in a scarlet flannel shirt and round blue Kilmarnock bonnet.

We had a lovely ride to the Falls, where we sat for some hours, sketching of course, till the noise of falling waters, combined with the heat, drove us home, when, as I wanted to go on working quietly, the sheriff assigned to me the judge's private room at the court-house, to be my studio for as long as I am here. So you may expect all drawings done here to have a certain legal rigidity about them!

Then we went to dine with Father Coan, in a snug wooden-frame house of the New England type, where we met a pleasant family-party. Mr Coan took me round his garden, shady with fine old tama-

rind and mango, and many other imported trees, all planted by himself. He told me how vividly he remembers Honolulu, where there was *no* pretty imported greenery, no bowery homes, no flowers, only a little natural scrub. The latter was far more abundant than it is now, the early settlers having denuded the hills for firewood, till the spoliation was stopped by law.

Mrs Coan, and her sister Miss Bingham, also told me tales of the past. Their father was one of the very earliest missionaries who came to savage Hawaii, and their brother has for years been working the Gilbert Islands in charge of a mission, now sent by Christian Hawaii to carry the same good tidings to the heathen isles in Micronesia. The group where Mr Bingham has been stationed for so long, with his Hawaiian teachers, consists of low atolls, which produce no food except cocoa-nuts and the woody *pandanus* (the latter is dried, and ground to a coarse meal resembling sweetish sawdust). These, with occasional fish, when they can catch them, are all that the isles yield. For all else they are dependent on the rare visits of the mission ship. Such supplies are apt to run short, and then the position of the foreigner is not an enviable one, especially if he be out of health, as is only too probable.

We walked home in the bright moonlight, by

pleasant paths, and past many homes embowered in flowering vines, and shrubberies of hibiscus, and allamandas, brilliant with scarlet and yellow blossoms, and various large-leaved plants, which shine like mirrors in the clear white light. We met a few people riding very soberly, but saw none of the picturesque riding-dresses which were in favour a few years ago.

Sunday, 26th.

Helen and little Allan have both caught the measles. How they can have done so is a mystery, as there do not appear to be any other cases about.

Again to-day, after service, Mrs Lyman sent me the church flowers, accompanied by a gift of several tall sugar-canes from her own garden.

Then we went for a quiet stroll up the green banks of the Wailuku, looking towards the great hills.

I really am sorry to be obliged to confess it, but Mauna Loa is unquestionably a very ugly mountain. It is the proper thing to speak of Mauna Kea and Mauna Loa with the reverent admiration due to the twin giants of the Pacific. I am reminded that they are 14,000 feet in height, and that their nearest rival to the north-east is Mount Whitney, the highest peak of the Californian

Sierras; and to the north-west, Fuji-yama, the Holy Mountain of Japan.

It is all very well to tell me this, and my mind confesses it to be true, but my eyes altogether refuse to do homage to these dull forms, or to believe in their height. Heresy though it be, I am bound to record my impressions that Mauna Loa, Mauna Hualalai, and Mauna Kea are suggestive of three stranded whales—the latter, however, having the advantage of a dorsal fin composed of a series of apparently small craters; and, indeed, I am told that the summit of Hualalai is quite honeycombed with craters, but they do not appear to be of sufficient magnitude to affect the outline (certainly not as seen from Kawaihai, from which point the three shapeless giants are seen grouped so as to form a triple undulation, rising from a near shore of the most forbidding and barren lava — altogether a most uninviting picture).

When I remember that it is but a few weeks since I stood on the summit of beautiful Fuji-yama, and did reverent homage to the faultless grace of its sweeping lines, it seems to me inexcusable of these ugly giants not to have attained to something nearer the ideal volcanic cone.

But as regards Mauna Loa, it may do so yet, for there is no saying what it may grow to.

Indeed I frequently reprove myself for making severe strictures on its personal appearance. I tell myself that "children and fools should not see things till they are done," and that this ugly duckling may turn out a beautiful swan. And indeed, if it were not so careless and so wasteful, it might very soon far transcend Fuji-yama, for the amount of good building material which it is ceaselessly manufacturing would, if properly applied, soon reach up to heaven. Apparently the fire-spirits are like idle boys, and find it more amusing to throw stones in every direction than to build up their own house. So year after year they waste as much good solid lava as would build the grandest cone in creation; and expend all their energies in annoying their neighbours, instead of providing them with an object of beauty for a perpetual delight, such as the Peerless Cone of Japan, or Mount Shasta in California.

However, Mauna Loa is an undeveloped young mountain, of infinite energy and promise; so it would be most unfair to criticise it harshly at its tender age. Who can foretell that it may not ere long repent of its foolish habits, and apply itself so diligently to the work of growing, that some day it may eclipse the far-famed Peak of Teneriffe?

It certainly has a good broad foundation to work

on, for its circumference round the base is little less than 200 miles!

I am looking forward to very soon becoming intimately acquainted with this ill-regulated baby-giant. Hitherto I have deferred the long ride to the crater, in the hope of some white escort turning up; and now the Rev. A. O. Forbes, who is pastor of the foreign community here, says he must visit some of his flock on the farther side of the island, which can only be reached by going across the mountain; so I shall have the advantage of his company as far as the crater of Kilauea, where a white man keeps a rest-house for travellers, and will look after me, as long as I care to stay there.

You know my prejudice against ever travelling without a responsible "pale face" at least, when I can avoid it; and here there is no occasion for doing so, as there is always some one on the move.

So I am to be ready for a 5 A.M. start to-morrow morning, and hope ere night to have beheld the Fountains of Living Fire.

CHAPTER VII.

RIDE FROM HILO TO KILAUEA CRATER — BEAUTIFUL FOREST — STRANGE LAVA-FORMS — HALF-WAY HOUSE — OFFERINGS TO PÉLÉ — VOLCANIC MYTHOLOGY.

VOLCANO HOUSE, KILAUEA,
October 28th.

DEAR NELL,—I am indulging in a day of comparative rest, yesterday having been truly exhausting. It was a long day, and I prolonged it most unnecessarily—for, having gone to bed full of the idea of having to be ready to start at five, and determined not to be late, I awoke at 2 A.M., and mistook the brilliant moonlight for the dawn. My watch had stopped, so I had to go to the dining-room to investigate, and of course, after that, could sleep no more, though I lay still till four o'clock.

Soon afterwards I found that Mrs Severance's kind niece, Emma Clark (who was sitting up watching a sick child), had prepared a comfortable hot breakfast for me, and capital strong coffee — an excellent beginning for a hard day's

work. Then the Hawaiian from whom I had hired a horse for this week, arrived and saddled it. I fear the poor beast must have thought he had fallen on evil times, for my English side-saddle is double the weight of the Mexican saddles generally used here, and from its pommel were slung my largest zinc painting-block, all needful materials for work, luncheon, and sufficient warm raiment for a week. This, in addition to myself, a large white-covered umbrella, my inseparable companions the opera-glasses, and a long tether-rope coiled round his neck, made up a pretty considerable weight to pile on to any patient animal. However, he was strong and sure-footed, and did not seem to object.

Finding that my companion failed to appear at the hour of tryst, I rode round by his house, whence we eventually started at 6 A.M. on our thirty miles' ride, from the palm-fringed coast of Hilo to this house on the brink of the awful crater. It is an ascent of 4000 feet, but is so very gradual that you scarcely know that you are ascending. Apparently the whole distance to the summit of the mountain is an equally gentle slope, which is said to be due to its having been built up by successive flows of exceedingly fluid lava. Indeed, this great crater seems to lie on a wide plain, rather than on the flank of a mountain 14,000 feet high.

As I look up to the summit, it seems as if the ascent must be as smooth as if, starting from a whale's tail, I were to walk up to his head! But practically, even the thirty miles we rode yesterday are very exhausting toil, owing to the nature of the ground, which is all one sea of lava, in every stage of rugged newness or semi-decomposition; showing where each successive flow has overtaken its predecessors—surging torrents of the roughest black lava-blocks having burnt their way through the forest, or floods of smooth, liquid, semi-vitreous satin-rock having overflowed wide tracts where kindly vegetation had begun to appear.

On first leaving the pleasant village of Hilo, with its pretty bowery homes, we rode for four miles over undulating grassy country, and then suddenly plunged into a belt of most lovely tropical jungle. It quite took me by surprise; for I had become so impressed with the bleak nakedness of these isles (save where the parched soil is compelled to repay artificial irrigation), that I scarcely hoped to find anything approaching to the luxuriance of the South Seas. And yet here was a belt of forest not to be excelled in any southern group, so rich and beautiful is it.

It is a jungle composed chiefly of very fine large candle-nuts[1] (*kukui*), with strange silvery foliage, and

[1] *Aleurites triloba.*

masses of sweet white blossom; acacia (*koa*); hibiscus, with blue-green foliage and lemon-coloured blossom; bread-fruit, *ohia*[1] (the pink-blossomed Malacca apple, which bears the juicy insipid fruit which in Fiji we called *keveeka*), palms, guavas, wild plantains, and all the usual class of Pacific jungle-trees, but with the charm of a very unusual variety of parasitic plants; vines without number, the most notable being one called the *iē*[2] (pronounced *Eee—eh!*), which I have not previously met with. It trails all over the highest trees, and hangs in festoons like heavy twisted ropes, bearing its foliage in large tufts, set like the screw-pine, each of which bears in its centre from three to five large, pure scarlet pillars, which eventually develop into fruit.

They are surrounded by three spiky young leaves, also of a pure scarlet, and these again by three scarlet leaves just tipped with green; so the effect of each tuft is that of a beautiful large blossom. These are scattered broadcast all through the forest, high and low, intertwining with large brilliantly blue convolvuli, and long trails of graceful climbing fern with hair-like stem. In short, tangled *lianas* of every sort are tossed about in richest profusion, as if anxious to make the most of the small space allotted to them.

I do not know whether my delight in this scene

[1] *Eugenia malaccensis.* [2] *Freycinetia scandens.*

of enchantment was partly due to two years having elapsed since I abandoned the South Sea paradise; but it seemed to me that nowhere had I seen such a luxuriant growth of screw-pines (here called *lau-hala*[1]). Here they attain from five-and-twenty to thirty feet in height; and in this sheltered forest they seem to devote less energy to the growth of extraordinary aerial props and roots, than when exposed to the sweeping breezes on the very exposed shores where I have most commonly found them; consequently, they bestow all their growing power on the production of great whorls of long drooping leaves, and large heavy fruits like pine-apples, built up of conic sections.

Here, as in the isles on the equator, these sections, when ripe, become sufficiently pulpy to be worth chewing (which is not the case farther south); and their beautiful golden colour wins for them a place of honour in the manufacture of *leis*. They are, in fact, strung together like large beads, and have the merit of outlasting many successive *leis* of perishing blossoms.

All among the upper boughs of the *pandanus*, snugly niched into corners of its quaint stems, are magnificent specimens of the great bird's-nest fern,[2] which is always beautiful—its bright glossy fronds contrasting so well with its more feathery

[1] *Pandanus.* [2] *Asplenium nidus.*

fragile relations—but which here grows more abundantly and rankly than is its wont. I saw many plants, each bearing about a dozen fronds, of from four to five feet in length, and about eight inches wide. It is a beautiful plant, stately in its stiffness. Mingled with these are great ferns and little ferns, and all manner of lovely green things of the forest.

It was a glimpse of Elysium, but unfortunately a very little glimpse. The forest-belt is only four miles in width, and then we emerged into open country. On the edge of the forest stands a clump of sickly-looking cocoa-palms, and beyond them a couple of miserable grass-huts, where, however, we were cheerily hailed by the very poor-looking inmates, who gladly welcomed my companion. Their sole worldly possessions consist of those palms and a small orange-orchard beyond the cottage. It is so small that travellers apparently consider it to be part of the forest, and help themselves accordingly, totally regardless of the owners.

But this is a failing by no means peculiar to this spot. Throughout these groups there is not a fruit-bearing tree which is not the property of at least one person—very often the joint-property of several families, among whom its produce is rigidly apportioned. Yet the chance traveller passing by assumes that this is all part of that tropical super-

abundance (which, so far as the poor are concerned, I have hitherto failed to discover in any country!) And so, thinking no evil, he freely helps himself to these free gifts of the soil, as he supposes them to be!

These kind, poor people freely offered us their oranges; but I am sure they must have rejoiced inwardly when they found that we really preferred the unmarketable but excellent wild guavas which here abound, with sweet pink flesh and seeds contained in a yellow rind.

The poor woman was blind of one eye. Both she and her husband seemed afflicted that I could not speak to them in Hawaiian, but sought to console me by the sound of my own mother-tongue, repeating sundry sentences in their best English, of which the only intelligible and oft-repeated words were the exclamation, "My God!" It certainly is unfortunate that the stray fragments of English acquired from passing foreigners should so often be suggestive of anything but reverence.

Leaving the grass-huts, we struck across a broad expanse of coarse grass and poor scrub. It is called the great Ti-tree swamp, on account of the former abundance of this generous plant, which grows spontaneously wherever the decomposition of the lava-rock gives it sufficient soil to support life. Up springs a tall stem with a crown of large glossy

leaves of brightest green, which are the delight of all cattle and horses.

In olden days this green banner was considered a sacred emblem of peace; and the messengers who carried a young plantain-tree and a Ti-tree[1] as their flag of truce, were allowed to pass unmolested from one hostile camp to another.

The leaves are tough, and are used for wrapping up food in the ovens. They also make a durable thatch; but the chief value of the plant lies in its large, fibrous, yellow root, which is highly saccharine, and is largely used in the making of puddings. When bruised and fermented, it yields a favourite drink; and when distilled, produces a strong fiery spirit, the manufacture of which is, however, illegal. But, like sandal-wood, and everything else of value, that once grew spontaneously in these parts, it has all been ruthlessly cut down or grubbed up; only a few scattered plants now remain.

So green a tract as this, marks where the old lava has had time to disintegrate; but from this point onwards the kindly veil of greenery grew sparse indeed, and we followed a scarcely perceptible track, leading us across successive flows of divers date, varying only in their degree of roughness. The path wound up and down, over ridges and curves and hummocks of hard black lava-rock, past

[1] *Dracæna terminalis.*

extinct craters and cones and great steam-cracks, now cool, but still forming deep and dangerous clefts, which are the more treacherous from being generally veiled by a light growth of ferns and silvery grasses, and kindred vegetation.

Then come long stretches of smooth, glossy, cream-coloured satin-rock. This is called *pa-hoe-hoe*, which is the generally accepted name to describe the smooth lava, which looks as if a glassy river had suddenly been congealed with all its ripples. Sometimes it looks like polished ivory—like elephants' teeth and tusks magnified a thousandfold — then it assumes the likeness of grey satin or dove-coloured velvet. Though often slippery, it is rather a relief to walk on this, especially when slightly weather-worn.

But the truly punishing scramble is that which leads across the terrible streams of rugged, black *a-a*, which resemble nothing so much as huge blocks of concrete, such as are used for making great artificial breakwaters—the hardest, most jagged, most unyielding, cruel class of rock. If you can imagine huge angular masses of black basalt, tossed about in the most reckless manner and heaped up anyhow over miles of country, you may have some notion of the pleasures of riding across an *a-a* flow!

Really I wonder how horses can keep their feet at all; but these seem quite accustomed to it. They

like to examine the ground, and step over it carefully. I have named my beast "Caution," because of his large development of that most excellent quality, which I greatly esteem when on difficult ground. Some of the natives, whose one idea of riding is galloping in the wildest, most reckless fashion, are not to be daunted even by a lava-path, and contrive to urge their horses to a swinging pace, even over such ground as this.

Though many come and go across this mountain-trail all the year round, yet so hard is the surface that there is scarcely an indication of travel, so far as the actual rock is concerned—indeed the trail is only legible where it passes through vegetation, which is nibbled and worn.

We crossed a hideous expanse of glossy-black lava, which looked as if a great pitch-pot had boiled over—then came smooth hummocks, like enormous masses of kidney-iron and plumbago and black-lead—and then came another stretch of smooth satin-rock, with ropy, rounded ledges, set in curved lines, showing where the latest flow has overrun its predecessor.

Then we skirted a pleasant bit of forest, chiefly of the silvery-leaved candle-nut—the same tree which I have found in all the southern groups, and, I think, known by the same name (*kukui*).

I was heartily glad when, after fourteen miles of

this tedious though interesting ride under a hot glaring sun, we came to some wretched grass-huts and small *taro* patches, and halted at one a few degrees better than its neighbours, which is known as the half-way house, and is, in fact, treated as a rest-house by all travellers.

All the true native houses here, look to me squalid and wretched by contrast with the Fijian houses. No matter how swampy the ground on which they stand, they have no raised foundation of stones, and the thatched roofs come down flush with the walls, instead of projecting in picturesque deep eaves.

The few inmates also appear to be lamentably poor, and the men are less clothed than any of the South Sea Islanders—all of whom aspire to something of the nature of a kilt. The Hawaiians either wear foreign clothes, or appear in the airy full dress of the *malo*, which is about equivalent to a small pocket-handkerchief, and is not a graceful garment. Some of the very old people, who were tattooed in their youthful heathen days, of course retain that imperishable decoration, which has the advantage of not changing with the freaks of fashion.

I noticed that most huts grow a few flowers, always with a view to making *leis*. Marigolds are in favour, and pink roses, and a white jessamine. They are allowed to grow rankly, without any care.

Large masses of waxy pink begonia run wild near cottages, and the datura, with its large white trumpet-shaped blossoms.

The house at which we halted, being semi-civilised, has a wooden verandah, extremely dirty, in which were heaped saddles and other household properties of various description. Ours were soon added to the pile, and our beasts turned out to graze on the marshy grass.

The house was full of native travellers, and we congratulated ourselves on having brought luncheon with us, instead of having to wait the slaughter of a lean hen. I had a skin of Brand's beef-tea, the value of which I have proved many a time, and which I much prefer to Liebig, partly because it becomes as hard as leather, and will keep for any number of months; so it can lie snugly in one's travelling-bag without fear of spilling or spoiling, till some evil day when, food being scarcer or more unpalatable than usual, it comes in as treasure-trove.

So all I had to claim from the large and comely pink-robed housewife was a little boiling water. Her fire was out of doors, beside a muddy pond, and near it I noticed a fine oleander covered with rosy blossoms, and a very large orange-tree. These are so rare that they attract attention, and the people are so careless that they will not take the

trouble to plant either orange-trees or bread-fruits for a future generation. So such old trees as exist, are for the most part dying (all the bread-fruits I have seen on Hawaii are sickly), and I have not seen any young ones coming on.

Perhaps the secret of it all lies in the knowledge that the race is so surely and swiftly fading away. There are very few children, and such as there are do not seem to be greatly prized. Even in this rest-house, I noticed that the party consisted of half-a-dozen women, a man, and a baby. The women were amusing themselves making flower *leis*, one was making a hat, the others playing with pet dogs; and the baby was handed over to the tender compassions of the great, big, gentle man.

My hostess invited me to rest on a large four-post bed, with mattress of soft *pulu* fern stuffing, and a gay quilt. It was tempting to weary limbs, as the *pulu* is deliciously soft silky stuff; but I thought it safer to spread my own waterproof over a tolerably clean mat, and there rest awhile "Vaka Viti."[1]

But we dared not halt very long, having still to get over about sixteen miles of ground more execrable than what we had already passed.

In some places the track lay up a smooth incline of highly polished lava, slippery as glass,

[1] Fiji fashion—see At Home in Fiji. By C. F. Gordon Cumming.

where the horses slid at every step. In other places it undulated, and lay in rounded ridges, with intervening hollows, precisely resembling a billowy ocean. I expected every moment that my horse would lose its footing; but it was a cautious animal, and seemed quite at home on this strange fossil sea.

Soon the formation changed. We seemed to be crossing a ploughed field, with deep furrows; but instead of sinking in rich soil, we were climbing over ridges of the hardest, blackest rock, most wearisome to traverse, and oh, so hot! as though it had absorbed all the sun's rays, only to refract them with intensified power.

This was apparently a recent flow, and formed a clearly defined belt, extending from the base of the mountain towards the sea, and traversing a wide plateau of very ancient decomposed lava, much of which had crumbled to a fine sand, like powdered glass, and wellnigh as sparkling. The keen trade-wind blew this vitreous dust in our eyes, and we were thankful that vegetation had contrived to make so much way that the greater part of this old lava-bed was covered with scrub, which prevented the dust from rising in dense clouds.

I was much atonished to see several small beds of mountain *taro*, apparently flourishing in this very dry, sandy soil. Hitherto my ideas of *taro* have been chiefly confined to the *Arum esculentum*,

which requires to be grown in very moist rich soil —in short, in standing water. But on these arid parched lands, where there is little or no water, this hardy highlander contrives to find a living, and craves no other drink than the abundant mountain dew, which here falls so freely. On the strength of this light fare, it produces a root about four inches in diameter and a foot in length, much redder in colour than the *taro* of the low country, but not unpalatable.

Then came another stretch of the ocean-like, billowy lava, curiously crossed with small diagonal ripples, giving precisely the appearance which we have so often watched on the sea-waves, when a sudden breeze springs up, forming what sailors call a cat's-paw.

Every here and there we passed small extinct craters, some in the form of conical hills, others like cups sunk in the earth, but the majority were overgrown with the candle-nut and other trees. Deep ghastly chasms lay hidden among the scrub, which, like those we noticed in the morning, are all the more dangerous to roaming cattle and horses, because the greenest ferns and most succulent Ti-tree grow close along their precipitous brink, doubtless encouraged by some warm breath from the subterranean fires which may still find its way by the old channels.

My landlord tells me that upwards of thirty horses have been killed within the last twelve months, by falling into the steam-cracks close to the Volcano House. This is without counting cattle, of whom a considerable number fall in. This very morning two calves were observed suddenly to disappear. On rushing to the spot, they were seen at the bottom of a crevice, about sixty feet below the surface. Strong ropes were brought, and a man was lowered, who adjusted the ropes so as to allow the poor beasts to be drawn up one by one, and then his own turn came. The calves did not seem much the worse, but of course it was ten to one that they had not gone down one of the bottomless fissures, into unutterable horrors.

Now I fully appreciate the value of the tether-rope, which seemed to me such a superfluous necklace for poor old Caution the morning we started.

Really the ride here seemed interminable, and the pace grew slower and slower as the hours crawled on. Over slopes and slabs of slippery rock the horses slid and scrambled, till I sometimes thought they *must* fall; but they proved wonderfully sure-footed, and kept their ground. Caution, heavily weighted as he was, positively refused to quicken his pace; so, late in the afternoon, Mr Forbes hurried on, to give notice that two hungry people would want supper.

Having lost his companion, Caution chose still further to relax his pace, which grew slower and slower. Oh weariness! I tried shifting my position, and riding after the manner of the ladies of Hawaii, *à califourchon*, which proved some relief, but I confess I was *awfully* tired.

The evening grew bitterly cold, the sun set, and white vapours rising from the steam-cracks all around, floated up through the dark low forest, and heavy dew lay on the grass and glittered in the moonlight. It was very eerie; and I was truly thankful on coming to a spot where the forest-path divided to right and left, to be cheerily hailed by Kalahea, a jovial Hawaiian, who had been sent to meet me, and soon brought me safely to this cosy wooden rest-house, on the very verge of the great awful pit, which I knew to be the great crater.

But not even the fiery glow, reflected on the clouds, could keep me long away from the good hot coffee and substantial supper which awaited us beside the blazing fire, in the wide open fireplace. Indeed its ruddy gleam, lighting the cheerful room, was at that moment the more attractive object of the two.

The landlord, Mr Lentz, was absent; but we were well cared for by his German guide, Roback—once a sailor, now the owner of a handsome, active Hawaiian wife, with a pretty child. She prepared

our rooms, which are neat and clean, and after one long wondering look at the strange, dimly revealed scene outspread before me, I thankfully crept into a soft bed of fern-down, and slept as only the very weary can sleep.

. . . . . .

Rested and refreshed, I was up betimes, to look with unwearied eyes upon this strange sight, of which I have been dreaming for years. Now I have spent four-and-twenty hours in its very presence, and . . . Well, I don't quite know how to put it. . . . The fact of the matter is, . . . I'm afraid I am rather disappointed. I suppose I expected too much. My mind was full of "sportive fire fountains" and "awful detonations," and all that sort of thing; but I was utterly unprepared for the dull hideousness of the actual scene. I have never seen a sketch or a photograph which gave me the faintest idea of what this place really is; and now . . . Well, I suppose I shall learn to understand it in a day or two.

So far, I must candidly confess, that for scenic effect these *constructive* fires cannot hold a candle to an ordinarily *destructive* one. Such, for instance, as the burning of the Central Hotel at Yokohama last July, as I saw it from the Bluff. Or that appallingly magnificent scene last Christmas-night,

when, overlooking the city of Hong-kong, we beheld mountain and harbour alike illuminated by the glow of the fearful conflagration which raged for eighteen hours.

Here, one glowing cloud rising from the fire-lake in the central crater, and a broken line of irregular fire-dots, like red-hot cinders, which mark the course of a lava-flow in the outer crater, are the only indications I have as yet seen of the mighty power working beneath us. And even these are only visible after sunset. From the moment the sun rose till he sank to rest, I saw only a huge sunken pit, upwards of nine miles in circumference, lying 600 feet below me, and paved with a cold blue-grey something, which might be leaden-coloured water, but which I know to be lava.

That 600 feet is a sheer precipice extending right round the crater. Only just below this house is it possible to descend, by a steep zigzag path. I am told that in some years these walls have been upwards of a thousand feet in depth, for the surface of the outer crater is at any moment liable to change: the lava-floods may be outpoured upon it from the great funnel, or it may open up "occasional" chimneys in unexpected places, and have little games of its own, quite independently of the great ever-working Halemaumau.

But this crater of Kilauea seems almost always

to keep within bounds. Whatever vagaries it may perpetrate, they are generally confined within its own set limits. If it wishes to play above-ground, it makes new lakes and rivers and fountains in its own playground, but it never passes beyond that wall.

Most of the mischief that is done in the outer world flows from Mokua-wéo-wéo, the crater on the summit of Mauna Loa, of whose existence we could not gather one hint from gazing up at the huge flattened dome — 10,000 feet above us. I said gazing up; I should rather say gazing away—for though I have now ascended 4000 of Mauna Loa's 14,000 feet, I still seem to be looking along a wide plain, and up a gentle slope to the summit.

That gently rounded top does not afford the faintest indication of the fires which slumber within, and which, when they do awaken, cause such terrific earthquakes and lava-flows, in whichever direction their wild will may impel their action.

The crater of Mokua-wéo-wéo is about 14,000 feet above the level of the sea. That of Kilauea is only 4000 feet. The two craters have apparently no connection, and rarely show special activity simultaneously. Kilauea is the more equable in her temperament, is generally in action, and confines her ebullitions to her own quarters. But though Mokua-weo-weo is rarely stirred up to action, when she is, then certainly danger is to be looked for, in

some quarter, as you can well understand, when the fountain-head is at so enormous a height.

I suppose that if I were a truly energetic traveller I should feel bound to toil up that weary mountain and look down into its crater, but I honestly confess that I have not the smallest wish to do so. *Le jeu ne vaut pas la chandelle.* The exertion would be very great, the cold severe, and I detest cold. The nights up there are icy, even if by extraordinary good-luck one "happens" on a still night; but the chances are ten to one in favour of wind, and then the cold becomes arctic. The whole journey is over a dreary desolate waste of lava, only varying in degrees of roughness, and all of repellent ugliness; and though extremely interesting, and of very varied type, I know that in the crater now before me, and indeed in the course of our thirty miles' ride from Hilo, I have seen, or shall see, every form that lava is capable of assuming—for of course there is a limit to its powers of contortion, and you must necessarily find the same kind of thing repeated over and over again.

For thus the whole of this great island has been built up. Flow upon flow, layer upon layer, ever deepening, coarser or smoother, according to whether the furnace within has been "seven times heated," or whether the fires are moderate.

Having reached the summit, you find that, in-

stead of the dome-shaped top which you picture from below, you have reached a ghastly table-land twenty-four miles in circumference. The crater of Mokua-wéo-wéo is only six miles in circumference —that is to say, one-third smaller than Kilauea; and, moreover, its fire fountains are deeply set, 800 feet below the verge, from which alone the zealous pilgrim can behold them. This is supposing the fire-dragon to be in a tolerably peaceful state. Should he be in such a turbulent mood as to make him really worth seeing, the expedition is one of frightful danger, as no one can possibly foretell what form his outbursts may assume.

So I am sure you will agree in thinking that I shall do wisely to devote all my time to this one crater — probably the only spot on earth where Dame Nature admits mortals to be actual eye-witnesses of her labours in her vast foundries and smelting-works. At the farther side of this crater lies the inner circle, which is the true chimney, and is known as the Halemaumau, or House of Everlasting Burning. This it is which is constantly varying, so that no two people ever see it quite alike; and while some describe it as a lake of living fire, three miles in circumference, others, coming a month later, find a cluster of high crags thrown up and almost choking the lake; while perhaps, ere another week has elapsed, there will

be no crags and no lake, but only a vast awful chimney, with clouds of steam visible far, far below the earth's surface—a true bottomless pit.

At present the lake of fire is enclosed by a high circle of crags, all thrown up within the last few weeks, to a height of 600 feet, within which the awful waves of "unquenchable fire" surge and writhe without ceasing.

The crater has been unusually active for some months past, and within the last week the guides have been down twice (one was down only two days ago, with some German scientific travellers), and their notes in the Volcano Diary,[1] are full of the sublime terrors of the awful lake of fire. It appears to have then been in magnificent action—"billows of molten lava," "tossing fire-spray," &c., &c.

All the guides agree that there is no symptom of any change at present; so, as Roback wanted a day in the forest to shoot wild pigs, wherewith to feed the native servants, and as I was still so tired as to be glad of a day's respite ere undertaking the unknown fatigues which the expedition might involve, we agreed to defer the toilsome descent into

[1] A volume in which every one is requested to enter a short statement of the condition of the volcano on the day he happens to visit it—a record which, even as it is, is of value, and would be decidedly more so if this intention were adhered to, and vulgarly profane "wit" omitted.

the crater till to-morrow, and I have devoted to-day to securing a general bird's-eye view from the highest part of this plain, looking down from the brink of the great outer crater right into the inner one. To effect this, I rode about half-way round the crater and took up my position on the western crags, where I stayed all day alone, engrossed in the study of the dreary scene of desolation.

Though I could partly look into the inner circle of crags which forms the Halemaumau, I could see no lake, only a confused mass of peaks, with floating wreaths of white vapour, which really might have passed for morning mist floating up from Lake Coruisk in Skye. Not a tinge of fiery reflection was to be seen till after sunset.

What chiefly impressed me was the strange stillness of the scene, as compared with the thunderous raging and roaring I have heard in the volcanic regions of New Zealand.[1] To-day I heard occasional slight detonations, and sounds as of falling rocks, but nothing exciting occurred.

I had repeatedly to stop work in order to catch my horse: the poor beast, failing to find one green leaf as fodder, and being therefore restless, again and again pulled up the bushes of small guava scrub, to which alone I could tether him in this plain of dry volcanic dust.

[1] At Home in Fiji, vol. ii., chaps. xxiv. and xxv.

The danger I dreaded was, lest in his search for food he should fall into one of the innumerable steam-cracks which honeycomb the whole country for miles round. All through the woods there are clefts of all sizes, from one vast fissure thirteen miles in length, which suddenly burst open in 1868, to quite small pits, perhaps 100 feet deep, and completely hidden by rank vegetation—chiefly by ferns, which love the warm steam, especially one beautiful kind which bears from one to three long young fronds of purest scarlet.

That thirteen-mile fissure was rather an awkward freak of the fire-gods, as it split the land right across the main travelling-road; so now the track has to make a wide circuit so as to head round the farthest end of this great *crevasse,* whence columns of steam continue to rise ceaselessly.

Poor Caution continued to remind me of the cruelty of tethering him on volcanic sand where there was nothing to eat; and finally, when I thought I had tethered him quite securely, he pulled up the bush and trotted back to the Volcano House, where he was ignominiously brought back by Kalahea, who then started on a quiet walk along the brink of the crags. I suspect it was by no means the first time he had taken that walk, for he shortly returned greatly elated at having found three and a half dollars, which some passers-

by (albeit very good Christians) had thrown as an offering to Pélé, who in Hawaiian mythology was the dread goddess of the volcano. The dollars, thrown from the bridle-path, had fallen short of their mark, and so became treasure-trove to one too familiar with the realm of the goddess to make him scruple about sharing her profits.

Her favourite votive offerings are said to be white chickens,[1] which are still occasionally offered in secret. And a wonderful story has just been told to me of a mysterious parcel which, quite recently, was brought by an old man too decrepit to make the descent himself, with a request that one of the guides would throw it into the crater. The parcel contained the bones of a young child.

Of minor offerings the flame-coloured berries of the *ohelo* and the strawberry have always been sacred to Pélé on account of their colour. Wherever the lava is sufficiently decomposed to allow vegetation to spring up, there speedily appear small bushes, somewhat akin to our Scotch blaeberry, but bearing a heavy crop of large juicy berries, some red and some yellow, growing in clusters.

[1] It is interesting to note that the Hindoo colonists in the south of Java make offerings of chickens at the extinct crater of Brumo. It is said that in the "good old times" human sacrifices were required; but in later ages buffaloes were substituted, and now chickens are found to suffice. To the north of Java, at Deing, these worshippers of the volcanic gods have erected finely carved temples in the midst of all manner of boiling springs and other volcanic phenomena.

These are called *ohelo.*[1] They are most attractive to the eye, but are very insipid; and though refreshing to one parched with thirst, they are not particularly tempting as a fruit.

In heathen days these were the special property of Pélé: no Hawaiian dared to taste one till he had offered some to her, and craved her permission to eat them. When Mr Ellis came here in 1822, he found that, however willing the people might be to forsake the idols of the low country, the gods of the crater still held their sway of terror. So when he and his thirsty friends rejoiced on discovering these juicy berries, the natives implored them not to touch them, else some dire calamity would befall them all. Though themselves faint and parched, they dared not taste one till they reached the edge of the crater, when, gathering branches loaded with the tempting clusters, they broke them in two, and throwing half over the precipice, they called Pélé's attention to their offering, and to the fact that they themselves wished to eat of her *ohelos*, which they accordingly did.

On a high precipice near the crater was erected a *heiau*, which was a temple dedicated to Pélé, at which were offered fish and fruits, hogs and dogs. These were always cooked in the hot ground or by being suspended over some steaming chasm—great

[1] *Vaccinium reticulatum.*

natural cooking-pots. No other fire might be used for the purpose. In times of great danger multitudes of pigs were here sacrificed, and either thrown into the crater or into the fiery rivers which threatened to destroy the land.

One might have supposed that the craters of her own creation were the most suitable temples for a fire-goddess; but her worshippers seem to have considered the work of their own hands to be necessary, for in various parts of the country there were *heiaus* dedicated to Pélé.

One of those stood in the valley of Kaura, which lies between Hilo and Hamakua, and every passer-by laid his offering of sugar-cane or flower-wreaths before a group of rude stone idols swathed in white or yellow native cloth. Some laid on the altar locks of their hair as a very personal proof of devotion (and these were frequently thrown into the crater by the pilgrims who ventured so near the dread centre of danger). Once a-year all the people of the district assembled at this temple, bringing more valuable offerings of dogs, hogs, and fruit, to propitiate the fiery goddess, and secure their homes from earthquakes and lava-floods.

Though Pélé was the principal goddess of Kilauea, she was by no means alone in her fire-temple. Mr Ellis has recorded the very long and unpronounceable names of a family of five brethren, two

of whom were humpbacked, and of eight sisters, all beings to be dreaded, and each followed by a train of attendant fire-spirits.

Many were the romantic legends and adventures of these celestial (or infernal) beings which were recounted by the natives, who saw their hand in every lightning-flash, and heard their voice in the thunder-roar—who recognised their power in the trembling earth, and believed that they dwelt in the fiery conical chimneys of the crater, where they amused themselves by playing *konane* (which is the Hawaiian game of draughts, played with black and white stones set fourteen in a row, and with two hundred squares). The natives, whose own idea of bliss was surf-riding and dancing, declared that the red flaming surges were the surf wherein the gods swam sportively, while the crackling of the flames and the roaring of the furnaces were the music of their dances.

I do not suppose that they can be holding high revel to-night, for everything seems very still and peaceful. I remained at my sketching-ground till long after sunset; and as the twilight deepened, the colour in Halemaumau became more intense. Its cliffs glowed crimson with the reflection from unseen depths. The clouds of white steam were likewise illumined, and formed a rosy canopy above the throne of the fire-gods.

Returning to supper, I found a most inviting little roast sucking-pig, which Roback had added to his heavier bag for my especial behoof, also a delicious tart of Pélé's *ohelo* berries,—an admirable and characteristic feast in the wilderness, and excellently cooked by a smooth and shining China-man—the ubiquitous Johnny!

I have just had a last look at the crater: all is very still, only the little beaded line of red dots, and a faint flush on the cloud. To-morrow I hope to see it nearer. Good night.

CHAPTER VIII.

DESCENT INTO THE CRATER — SUNDRY FORMS OF LAVA — THE DANGER OF DELAY — OH FOR THE SIGHT OF A VANISHED LAKE !—LAVA-CHIMNEYS—LAVA-FLOWS—A SULPHUR-BATH—CONDENSED STEAM.

VOLCANO HOUSE,
KILAUEA, *October 29th.*

DEAR NELL,—I know you will be relieved to learn that I have returned in safety from the Mouth of the Pit. Truth to say, the reality proved very different from my ideal; and I fear I must confess to some disappointment.

However, I'll tell you all about it in detail.

This morning I made an early start alone with Roback, who carried my sketching-gear and a canteen of drinking-water, for we were bound on a thirsty errand. The first part of the descent was pleasant enough, and clothed with pretty vegetation, chiefly consisting of stunted *ohias* with their feathery crimson blossom, various kinds of fern, a very ornamental silver-grass, quantities of *ohelos*

(the flame-coloured whortleberry, sacred in old mythology), and several plants with brilliantly blue berries. Above us, in deep shadow, lay the crag from which we were descending, and before us the great grey lava-bed, formed by countless successive overflows. Its general appearance is that of a billowy ocean, suddenly fossilised, but each several wave has taken a distinct form.

To this scene of most dreary desolation we now descended by a very steep zigzag path. The place derived a touch of sad human interest from the fact that only a few weeks previously an English gentleman,[1] returning from the Lake of Fire, was so overcome by the manifold excitements of the day, that he suddenly dropped down dead. He was suffering from advanced heart complaint, and his friends had endeavoured to dissuade him from undertaking so fatiguing an expedition; but he was resolved to go—was intensely interested in all he saw, and only a few moments before his death, declared he was not in the least over-exhausted; that it had been to him a day of keen enjoyment, and that he must certainly return to spend another day in the crater. A small cairn of lava-fragments marks the spot where he fell, and my landlord is now preparing a rude wooden cross, to be eventually replaced by one of granite. A

[1] Mr Houlder.

more pathetic memento is a little pile of carefully selected lava-specimens, which had fallen from the hands that could no longer grasp them, and which one of the guides had reverently laid together, close to the little cairn.

I have already explained to you that, as seen from above, the bed of the outer crater resembles a dark bluish-grey lake, being apparently a level surface. But on a nearer approach, we found it to be a bed of extremely irregular black lava contorted into all manner of forms, such as huge coils of rope, folds of rich black satin drapery, waves of glistening black glass forming a thin iridescent coating to a sort of bubbly red lava.

And here and there the lava had flowed over ridges so steep, that in cooling it had assumed the appearance of a perfectly petrified waterfall. We saw plainly where successive lava-flows overlapped one another—the currents, after flowing in opposite directions, showing where the fires had found temporary vent by some newly formed lake or chimney.

We climbed up and down over undulations which on ordinary ground would be accounted little hills,—lava-waves whose crests rose perhaps a hundred feet or more above the general level. A smoothly wrinkled expanse is crossed by a stream of blackest angular blocks, tumbled together anyhow—a chopping sea petrified.

In many places large lava-bubbles blister the surface of the smooth lava. They look like thin bottle-glass, and appear as if blown by escaping gases. Everywhere the lava-crust cracks crisply under foot, breaking into sharp fragments.

Here and there yawn deep splits and fissures. Some are mere narrow cracks, scarcely to be observed but for an occasional puff of white steam. Others are broader, and horribly suggestive, for a hot breath of poisonous sulphureous fumes rises thence, half choking one, and acts as a mirage, making the air tremulous, so that everything around seems to quiver. Through some of these cracks fresh lava has oozed out, and lies in black glossy rolls, as if the old flow were seamed with pitch.

On one high ridge, which seemed to have stood as an island during the more recent flows, the lava had begun to disintegrate, and already a few delicate ferns had—as if by a living instinct—found their way thither, and nestled in this rude cradle, their tender green contrasting strangely with their surroundings. I gathered a few fronds as memorials of the day; and as I looked on this earliest effort of vegetation in the great desert around, I bethought me of such mysterious spots as those strange pits in the Australian Blue Mountains, where, in a deep sunken abyss, untrodden by foot of man, tall tree-ferns and all their beautiful kin-

dred reign undisturbed—and I wondered whether, in some far-back time, those cups into which we now look down on the fern-crowns far below us, were dreary and bare as Kilauea.

At one place we came to what seemed like a petrified waterfall, where a lava-stream had poured over a cliff when almost exhausted, and had quickly cooled, retaining all its distinctive curves and forms. Even the individual particles of spray lay tossed about like congealed rain-drops. It was a most curious and beautiful sight.

Sometimes, as we toiled along, the thin crust of fibrous lava gave way beneath our feet, and we landed in hollows below, at no great depth. These brittle places seem to be surface bubbles or tubes which have contracted in cooling, and they never let us in more than knee-deep. But of course, every such plunge was a startling reminder of what we might do should we chance to sink through a fissure, and made me more ready to obey my guide's injunction, and walk in his footsteps. Sometimes we crossed suspicious-looking tracts, which sounded hollow beneath our feet, and still more vividly suggested possible doom.

Over one steep bank the lava had flowed so gently that it hung in folds like rich drapery—you might have fancied a velvet curtain caught up for effect, in an artist's studio.

Below it lay what looked like many nests of snakes coiled up in intricate convolutions, as if boa-constrictors, and great pythons, and little rattle-snakes, and reptiles of every size, had here congregated.

Just beyond lay an almost level expanse of something which gleamed like a rainbow. As we approached it, the fairy-like play of prismatic colours was altogether dazzling; and on nearer inspection we found that it was produced by myriads of minute flakes of black glass, each iridescent, forming a perfect prism. The thin crust broke beneath our steps, and we perceived that the vitrified lava forming these miniature rainbows was but a scum formed on the surface of a reddish honeycomb,—a substance resembling the refuse or slag of iron-works.

Then we came to smooth waves that were really like ocean billows; but beyond these lay a succession of great rollers that had in cooling been forced back, one over the other, so as to form ridges, suggesting huge coils of rope, all twisted and contorted—mighty hawsers laid in long lines ready for use; a likeness which is the more striking, inasmuch as each several rope is seamed with innumerable cracks, leaving raised lines exactly like the twisted strands of hemp—an impression further conveyed by the filaments of stringy brown

lava, like spun glass, which lie scattered here and there, having been caught by the wind (when thrown up) in mid-air in a state of perfect fusion, forming fine lava-drops—a rain of liquid rock, and so drawn out in slender threads, like fine silky hair.

In fact, this filmy, finely-spun glass is known as Pélé's hair—*Rauoho o Pélé.* It is of a rich olive-green or yellowish-brown colour—a hint for æsthetic fashions !—and is glossy, like the byssus of certain shells, but very brittle to handle. Sometimes when the great fire fountains toss their spray so high that it flies above the level of the cliffs, the breeze catches it sportively, and carries it far away over the island ; and the birds line their nests with this silky volcanic hair. Sometimes you can collect handfuls, clinging to the rocks to which it has drifted, generally with a pear-shaped drop still attached to it.[1]

There are places where the lava is so glassy and transparent that we could see through it, and distinguish what sort of lava lay beneath it ; and sometimes we could even distinguish tresses of this silken hair, several inches in length, lying where it fell, on the former surface, and now glazed by this later

[1] I am told that an artificial substance, precisely similar to this strange filamentous glass, is manufactured at iron-works, by passing jets of steam through the molten slag and refuse from the furnaces. A material is thus produced, soft as asbestos, and admirably adapted for packing fragile articles.

flow, which, from its transparency, we judged to have been fused at an unusually high temperature.

I saw some banks where the smooth satiny lava was broken up into masses for all the world like huge dark silvery-grey seals: the lumps are so thrown about that you could fancy the great shiny creatures are wriggling up the rocks or climbing over one another, like the sea-otters on the rocks at San Francisco. Indeed it requires small play of imagination to see these lava-beds all peopled with strange forms, such as the antediluvian monsters built up for our instruction at the Crystal Palace. All manner of creeping and crawling things seem to be here: gigantic lizards, and monstrous, many-armed cuttle-fish; huge hippopotami; mother sows with promising litters; turtles and fringed jelly-fish;—in short, all manner of zoological vagaries here seem to be fossilised.

One very common form resembles huge lumps of kidney iron. Akin to this was a very pretty formation of lava, which seemed to have dripped from a higher ridge while in an extremely liquid condition. It had fallen and cooled in distinct drops of a dark purplish hue, almost suggestive of grapes, and quite smooth and polished. It seemed to be a vitreous lava, and had flowed like water, filling up the cracks and crevices of the coarser bed beneath it.

Beyond this lay a wide expanse of shining black lava and obsidian, in many places thrown up into curiously shaped mounds, and contortions resembling images. Next lay a bed of the very coarsest *a-a*, tossed about in such wild confusion that it seemed as if only an earthquake could so have broken it up. Huge slabs of the very hardest black rock, 10 or 12 feet in length, and about as thick, lay at every conceivable angle, just like the great blocks of concrete piled at a harbour-mouth, to make a breakwater such as that at Port Saïd. You can hardly conceive more impossible ground to walk over.

In many places the lava seemed to have split into thick layers, from 20 to 40 feet in length, and barely 1 foot thick—the upper surface smooth and glazed, sometimes composed of myriad flakes of iridescent black glass, while the under side was rough, red, and porous, like coarse earthenware. It reminded me of the slag and refuse thrown out from iron-works. These huge flakes had curled themselves up in the strangest way, doubtless while cooling, or when forced up by heated air from below: some were piled up on one edge, and leant together like the card-houses built by children, but by no means so frail, though, when subjected to actual pressure, proving exceedingly brittle, for a heavy step breaks through the thickest layer, and

the foot generally lands on a firmer strata below. On the whole, I did not think this an unpleasant sort of lava to walk over, provided the under-crust was cool.

Here and there we came on banks of very dark, close-grained lava, with fine veins of tiny sparkling green or brown crystals. I think they are called olivine. I also found small but beautifully glittering white crystals on the under side of some curiously tubular lava, which forms small tunnels.

A very fatiguing form of flow consists of great hummocks of smooth lava, which, in cooling, have been rent by countless fissures, so that every step requires caution.

After traversing three miles of this strangely varied lava-bed, we reached the base of that inner circle of crags which, within the last few months, have been thrown up all round the central crater—*i.e.*, the Halemaumau. So rapidly have they been upheaved, that they now form a ring 600 feet in height; and up this steep ascent we had to climb in order to look into the Lake of Fire.

It was a toilsome ascent, over very brittle lava; but Roback kept cheering me by telling me what a grand sight awaited me, and that he had never seen the lake in finer action than last week. So we climbed over coils of huge hollow vitreous lava-pipes, which constantly broke beneath our weight,

and over ridges which looked to me like gigantic sugar-sticks, pulled out and twisted—and at last we gained the summit, and looked eagerly for the much-described Lake of Fire.

THERE WAS NONE! at least nothing worth speaking of, in the first instance. I turned to look at my guide, and he stood staring in stupefied, bewildered amazement. He could not believe his own eyes. Only a few days had elapsed since he had led a party of Americans to the very spot where he now stood beside me, in speechless wonder at the change.

They had watched the blood-red waves dashing in scarlet spray against the cliffs on the farther side of the lake of molten fire, then rushing back to form a mad whirlpool in its centre, and thence, as if with a new impulse, flinging themselves headlong into a great cavern which undermined the lava-terrace just below the spot where I was now standing.

My guide pointed to this thin ledge with a shudder, telling me how, on that day, an enthusiastic American girl had been so carried away by the enthralling fascination of the scene, that, forgetting all prudence, she had, notwithstanding his entreaties, contrived to climb down to this very terrace, and thence gain an unimpeded view of the fiery breakers as they dashed with awful roar into

the cavern below, and then surged back to meet new waves flowing from the centre, and thus meeting, to form ever-changing ridges and fountains of fire. It was a most frightful risk to run, for no one could foretell at what moment the undermining wave might break down the thin roof of the lava-bubble, and swallow up with it the rash and over-presumptuous human atoms.

It certainly is not fair on the guides that travellers should needlessly court such danger as this, for of course these men feel bound to follow their charge, incurring deadly risk, with their eyes open, on the faint chance of being able to rescue the rash adventurer from the natural consequences of his folly. The action of the fire-waves rushing into caverns can generally be studied to very good purpose at some point not immediately beneath one's own feet.

I confess I was myself sorely tempted to seek a nearer view of the place where the lake *should* have been, by venturing on to the lower ledge of what appears such solid lava; but I desisted on seeing the evident distress of my guide, who, however, forgot to remind me of *what ought to be impressed on all visitors before starting from the Crater House*—namely, that (perhaps in the outer crater, but quite certainly in the Halemaumau) this apparently solid surface is but the thinnest and most brittle crust, bridging over the surging waves of fire.

Not only had the lake disappeared, but a huge piece of the recently upheaved crag, which two days ago towered 600 feet above the level of the outer crater, had also vanished. It had evidently fallen into the lake, and was being boiled up again. But in the meantime, little was visible but a chaos of broken-up crags looming black and awful through the ever-shifting clouds of white vapour—whether Scotch mist, or volcanic smoke, mattered little. To all appearance we might have been standing on Highland crags looking down through the mists on some dark tarn ; and during three hours I sat on that frail lava-ridge sketching the newly-created scene, as peacefully as though it had been some old-world scene in Scotland.

Now and again, however, volumes of dense smoke came rolling up from the cavernous depths of the awful funnel down which the fire-waves had retreated; and, though happily the crag on which we stood was well to windward, the fumes of sulphur and hydrogen were sometimes almost suffocating. When clearer moments came, we could see flickering flames of fire flashing from narrow fissures, as if fiery gases were at work within. These fiery tongues change colour from one moment to the next, ever varying with the gases which gave them birth; but, for the most part, they were flickering flames of a pale weird blue,

which appeared and disappeared like the Will-o'-the-wisp as it dances over a reedy marsh. Presently we perceived that the lake had not altogether vanished; for patches of the grey lava became incandescent, and we saw that what at first appeared to be a bed of cold hard lava, was actually fluid, and crossed here and there by moving lines of crimson. Now and again some internal fire seemed to explode, and upheaved a dome-shaped mass of molten rock of a glowing rose-colour, which burst like a rocket, and continued to play for some moments.

But the only real activity was in the fountains playing at the base of the crags—some shooting out horizontally from beneath the overhanging cliffs, which are fringed with huge stalactites, ever forming, ever melting again. Beneath these cliffs you get glimpses of fiery caverns, and can imagine any amount of horror that lies within their dark portals. The fire-spray for ever dashes on the black crag, falling back in glowing cascades, or trickling in crimson fire from the tips of the black stalactites.

You can quite understand that though under any other circumstances I should have felt this to be a most wonderful sight, it was not what I had so counted on seeing, and so, I naturally felt myself aggrieved and defrauded. It is so

dreadfully annoying to know that if I had even ridden up from Hilo when I first arrived there, I should have seen the lake of fire in full action; but no one ever suggested that there could be any danger in delay,—on the contrary, ever since I landed at Honolulu, every one had been congratulating me on having arrived at so fortunate a time, the crater having been unusually active for many months; and old inhabitants encouraged me to stay a week in Honolulu before even starting for this island, never hinting that the lake of fire was capricious in its action, and that it was the part of wisdom to seize the opportune moment.

In point of fact, it is a natural consequence of its ceaseless activity, that the Halemaumau is continually varying in all its details. Sometimes it is one vast lake of fire, sometimes two, sometimes only a deep pit with no fire at all. In any case, the level of the fire is always varying. Then, again, the pit may be simply a deep gulf or chasm without any encircling edge of crag, and within a few weeks the forces at work below will upheave great lava-cliffs to a height of 500 feet, and a little later will so undermine the crags that they topple over into the lake and bury its fires, till they are themselves molten afresh. Thus the work of construction and destruction is ever going on hand in hand, both alike aimless, so far as we know.

A slight sketch of the changes which have occurred within the last twelve months, will illustrate the whole subject. In January 1879 the Halemaumau was one large lake without any divisions: it was enclosed by a low crag-wall, perhaps twenty feet above the general level of the lava-bed. In this wall were several cracks, through which streams of molten lava escaped into the outer crater. The lake was quite full, to the top of the wall, and large waves, tossed as if by a violent storm, were continually splashing over, accompanied by a noise like the discharge of artillery. There was no smoke, and at night fountains of fire were seen from the hotel, thrown high in mid-air.

From January to April the crag-wall was gradually upheaved till it attained a height of about 450 feet. During this time the fire was never less than forty feet from the top, and sometimes it rose to within five or six. All this time there were flows in the outer crater, and one night Mr Lentz and a party of gentlemen counted 317 different points in the crater from which the fire was bursting up.

On 21st April, the whole mass of crags round the Halemaumau fell in, leaving only a wall about twenty-five feet high. Standing on this level, you looked down 1000 feet into one vast pit without

any divisions, and could only see a little steam at the bottom. Gradually the crags were once more upheaved, and the fire filled up, within an inner circle of rock-wall. In seven months the crags attained an altitude of from 360 to 400 feet. The highest crag had fallen in about a fortnight before my arrival, partially filling the lake.

But two days before my visit the fiery waves were tossing and surging in wild glory; and it was without a shadow of misgiving that, on this morning of October 29th, we climbed the steep rock-wall, and eagerly looked for the fire waves and fountains, and marvels of mystery and beauty. And lo, there were none! no fire-waves, and only some small fountains spouting rather feebly, as if grieved to find themselves forsaken by all their fiery kindred. The rest was all chaos, — jagged masses of tumbled crag jutting up through volumes of dense white smoke, which rolled towards the farther end of Halemaumau (truly well named "the House of Everlasting Burning"), where lurid clouds of sulphureous steam wholly veiled the scene.

This was in the south lake, which is now divided by great lava-crags from the north lake. In the latter there was no trace of fire, but the bed of the lake was visible. There was no doubt as to what had happened. The crashing of falling rocks

which I had heard yesterday was, beyond all question, the falling in of some of the great crags, and their huge fragments effectually choked the fires.

Finding it impossible to see much from this point, and equally impossible to go along the summit of the crag, we descended to the bed of the outer crater, and tried to reascend at such a point as would enable us to look down into the north lake; but we were compelled to relinquish this attempt, there being at this point a large deposit of sulphur, traversed by many cracks, through which the suffocating gases rose in hot gusts—and I have always observed that the blasts of hot vapour, rising through sulphur-tubes, are more intensely scalding than any other.

So, once more descending, we consoled ourselves by watching the vagaries of a blowing cone or chimney—a quaint hollow tower about thirty feet in height, which, within the last few days, has built itself up on the summit of a high bank of what is apparently most reliable old lava. I suppose, however, that it has burst up a channel for itself from the great furnace, for to-day it has been spouting pretty freely. As we approached it, it began to roar and blow as if in great excitement, and a white light like burning gas played above it. The molten metal within surged up. We could just see it rise to the brim and sink

again. A few fiery drops were thrown up, to fall again in red-hot splashes on the cone itself.

Then the surging fluid within discovered a weak place in the funnel a few feet below the summit. Again and again it seemed to return to the attack, acting like a battering-ram, retreating only to strike the more violently. The weak spot trembled; it rose and fell as if struggling convulsively, like the lid of some mighty kettle; finally, it burst open, and the torrent of molten rock poured forth in a thick liquid stream, of a glowing flame-colour, which quickly formed a silvery skin when exposed to the air.

I was standing close beside it while it thus heaved, and then rushed forth, and the flow of molten mineral vividly recalled to my mind the casting of big guns in the Gateshead iron-works.

Near this cone, another furnace-funnel has arisen — a wide-mouthed chimney, into which (rashly peering) we could see the glow of the flowing lava, working along a subterranean channel far below. A rumbling, roaring sound in the depths made us start back affrighted, and, as we retreated, we looked back and saw weird white flames playing above the peep-hole, whence we had withdrawn none too soon. We supposed that the noise we heard was due to some internal explosion of gas, the fumes of which had half

choked us, and which exhaled from numerous blow-holes and fissures.

This chimney-building is a very curious process. Each is literally built up by its own internal action, by frequent deposits of layer upon layer of shining grey lava. The interior is of a much redder colour, and is highly glazed. We peered into some deep chasms of a very horrid nature. At the top they appear to be mere splits, but grow wider as they descend.

Some of the hottest fissures are edged and lined with flowers of sulphur, like golden frost-work, always scalding to the touch; and, moreover, the would-be robber is warned off by stifling exhalations, giving a gentle hint of possible mischief.

We crossed belts of grey compact lava, and masses of loosely piled scoria, with light pumice, —the surf and froth cast up by volcanic waves; rugged banks of broken lava, like cinders—the cinders from this wonderful forge! We found a pleasant path along lava lying in ripples, as though a flowing stream had suddenly cooled; then we came to an undulating expanse, as if a glassy sea had been turned to rock ere its heaving waves could rest.

Near this lay a belt of light cellular lava, jet black, and shining, and very brittle; and just beyond it came rugged ridges of coarse-grained black

lava—a sort of dark basaltic rock rising in a series of concentric crags. In some places the black rock crops up as if it had oozed through fissures in beds of red and yellow lava.

It is wonderful what a variety of form and material is produced in this strange workshop. I am told that this basaltic rock sometimes cools into true columnar form, but we didn't happen to see any to-day.

Though pretty well tired, we took a long walk across the crater to see a good specimen of a stone waterfall—a real lava-cascade, apparently still in the act of falling, so smoothly does it appear to be gliding onward. Then we went on to discover the cause of that beaded line of red fire which we have seen at nights in the open crater. We found two distinct flows still in motion, and, strange to say, representing those two very different forms of lava known as *a-a* and *pa-hoe-hoe*.

Though these streams were actually moving, they had precisely the same character as those we crossed on the way up from Hilo—the *a-a* black, rough, and jagged, a horrid stream of broken masses of blocks tossed together in wildest confusion, and rolling over and over, with a horrid grinding noise. Truly an infernal stream.

The *pa-hoe-hoe*, on the other hand, was attractive to look upon; and the half-cooled stream glided on

in thick folds, one over-running its neighbour, in wrinkles like rich cream. This smooth lava is always pleasant to walk upon, whereas the other is altogether detestable, and almost impassable for animals; and an *a-a* flow really implies desolation, for no amount of weathering can disintegrate those hard unyielding masses.

A long walk, with many divergings to examine strange lava-forms, brought us back to the foot of the great crag-wall, where Kalahea had come to meet us, with a bottle of cool water, for which we blessed him, and my companion thankfully transferred my sketching gear to fresh shoulders—a burden to which I added a considerable collection of specimens; for (though not generally given to annexing such matter) this newly created lava, fresh from the great internal foundries, and of such very varied quality, has a peculiar interest of its own.

I am chiefly struck by the total dissimilarity of any lava I have seen here, from the specimens I collected in Japan at the dormant crater of Fuji-Yama.

Slowly and wearily we toiled up the long steep ascent. I was thoroughly wearied ere we reached the summit, but halted at the Sulphur-Banks, which lie a short distance below the house, and indulged in the luxury of a sulphur steam-bath—an excellent thing in truth, none the worse for being

administered in a style somewhat primitive. The bath-room is built over a steam crack, above which is placed a wooden box, with bench and blanket on which to sit. The lid of the box shuts down in two halves, forming a circular hole, so as to leave the head of the bather outside! The said head is all the better of being crowned with a wet towel.

The heat is regulated by a rough but effective contrivance outside; and though it is difficult to avoid some qualms as to a possible scalding, no one seems to have come to grief as yet! A few seconds produce profuse perspiration; then with a bucket of tepid water, followed by one of cold water to prevent subsequent chill, the process is complete: and I, for one, felt so much refreshed by my bath, that I was able to linger and admire the pale primrose-coloured sulphur-banks, and the hedges of roses which grow so near. The banks are merely thin deposits of sulphur crystals, delicate as the fairy frost-work on leafless trees on bitter wintry mornings. They are microscopically exquisite, but there is no depth of sulphur here, like what I saw in New Zealand.

By the way, I believe that all the water we use here is naturally distilled from the steam-cracks round the house. I know the native servants do all their cooking by steam, in the simple fashion which prevails wherever geysers and natural steam-works are found.

The last meal I had so prepared was at "The Great Hell" in Japan; and many others have I enjoyed in the wilds of Fiji and of New Zealand.[1]

But it does seem strange that where one side of an island is literally seamed with streams, the other should be in a great measure dependent on such condensed vapour as can be procured from steam-cracks or the drippings in caves (which are lava-bubbles). I remember wondering when I first heard of the goodwill displayed by Hawaiian chiefs to the missionaries in certain districts by undertaking to furnish them with a sufficiency of water. Now I quite understand the value of the boon.

Our tidings of the vanished lake were received with keen interest by men whose long experience has taught them to be on the watch for possibilities. Mr Lentz and his Hawaiians all corroborate Roback's first words: "It has not disappeared for long. It is bound to come to the surface again pretty soon, but there's no telling *where* we shall see it next!" If it should merely make a new lake within the great pit, we shall have a grand sight; but, of course, there is an equal chance of its bursting out in the open country, and rending awful chasms, and perhaps swallowing up this house in the earthquake!

A pleasant prospect, truly!

[1] At Home in Fiji, vol. ii. pp. 76 and 185-227.

CHAPTER IX.

AN EXTINCT CRATER—LEGEND OF THE MUD-HEN—OF MAUNA KEA—OF HAU-LEI-LEI—HALLOWE'EN FIRE-FESTIVAL—A NEW FIRE LAKE—FIRE RIVERS.

VOLCANO HOUSE, *October 30th.*

THIS morning I was up betimes to secure a sketch of the rosy sunrise glow on Mauna Kea, whose crown of volcanic cones rise above the shoulder of the great mountain on which we stand.

With the pale primrose-coloured sulphur-banks for a middle distance, and this grassy lawn and thicket of pink roses for a foreground, I almost for a while forgot the desolate character of the scenery all around.

The grass was soaking with heavy dew, and it was bitterly cold; so I blessed the kind landlord when he suddenly appeared with a cup of hot coffee, and a good thick blanket to wrap round me.

After breakfast I started on Caution, with Kalahea as guide, to ride through the scrubby forest to the

Pali of Kilauea Iki—a small extinct crater, whence I obtained a grand view of the main crater, remaining there some hours to sketch the scene. At the lower end of this crater there are some trees still fringed with stalactites, formed by the lava tossed over them during the last eruption. Strange drapery for living trees!

This is not a pleasant country for riding, the forest being seamed with dangerous steam-cracks, generally veiled by foliage, ferns, and grasses. Formerly there was abundant sandal-wood, but it was so ruthlessly felled by traders that scarcely a stick escaped the wholesale spoliation.

There is a great deal of the *ohia-lehua*, which appears to me to be almost identical with the beautiful *pohutakawa* of New Zealand (the Christmas-tree of the settlers), except that *it* is a luxuriant wide-spreading tree, and *this* is a poor stunted thing. This, however, scores in the matter of variety, as some of the *ohias* have yellow blossoms.[1]

It seems strange, after leaving the purely coniferous forests of California, to return to isles where nothing of the nature of a fir-tree is known.

Even the tree-ferns here are stunted—though I am told that a few miles farther there are fine beds of the great fern, from whose young fronds and stalk

[1] I believe the *pohutakawa* of New Zealand is the *Metrosideros tomentosa*, and the *ohia-lehua* is *Metrosideros polymorpha*.

is obtained the silky coating of *pulu* which forms so downy a stuffing for pillows and mattresses. For some years a large amount was exported to the United States; but it has rather gone out of favour, being of so soft and fine a texture that it sticks to everything.

The *pulu* fern grows to a height of about fifteen feet, and is found on all the Hawaiian isles, growing at from 1000 to 4000 feet above the sea. Each plant yields only about three ounces of the soft fibre, and it takes about three years to grow this supply, so that many fern-trees must be stripped to stuff one mattress. It is said that about 2000 Hawaiians, men, women, and children, make their livelihood as *pulu*-gatherers—very tedious work, and very unpleasant, from the exceedingly adhesive nature of the silky fibre, but certainly not severe labour. When sold for exportation, the collectors receive about six cents per lb. on delivery; and the *pulu*-merchants stipulate that it shall be carefully dried—no easy matter, as the *pulu* fern flourishes in the wettest cloud-regions; but of course wet *pulu* weighs more than dry, so the merchants are inexorable.

I must tell you a delightful old Hawaiian legend which Mr Forbes has just told me. (I regret to say that he has been suffering from such a severe sore throat as to have been compelled to give up

his ride across the island, and must return to Hilo to-morrow.)

The legend tells how, in days of old, the secret of making fire was unknown. Men fed on fruits, and uncooked roots, and raw fish (which last, indeed, still continue in favour). But a family of mud-hens discovered that, by rubbing certain dry woods together, they could make fire, just as if they were gods; and so, mortals sailing near the haunts of the mud-hens perceived the strange sight of fires and smoke.

So they tried to catch the mud-hens, that they might compel them to reveal the secret; but the hens were always on the elert, and escaped, till one day Maui, a Hawaiian hero, bethought him of dressing up a roll of *tappa* to look like a man sitting in his canoe, while he himself hid in the bush.

So when the old mud-hen thought that all the Hawaiians had departed, she came out from her hiding-place, and was about to kindle a fire, when Maui (instead of waiting patiently to see how she set to work) crept up and caught her, and held her prisoner till she should teach him the secret.

Several times she deceived him. First of all, she put off time by making him rub a *taro* stalk (which accounts for the sinuosity still to be observed on all *taro* stalks). Nor was it till Maui had half

twisted her neck that, to save her life, she was obliged to show him the right kinds of wood. But ere he released her, to punish her for having so often deceived him, Maui rubbed the top of her head with a fire-stick till it was raw. Wherefore she and all her descendants continue bald to the present day.[1]

I have just come in, very cold, having been out watching a heavy flow of glowing lava, apparently starting from near those independent chimneys I told you about. It is a strange and fascinating sight, and may prove the beginning of great things!

VOLCANO HOUSE, *October* 31*st*.

The morning air was bitterly cold, and I looked towards Mauna Kea, the "White Mountain." I perceived that it was rightly named; for its summit of ruddy-brown lava is now hidden by a deep snowfall, and the nine principal great cones which form its crown are of a dazzling whiteness.

Though of no great apparent size, one of these cones is really 900 feet in height, and the others are by no means pigmies, though their apparent size is dwarfed by being so far above the eye. They are, as it were, mere excrescences from

[1] The bald coot abounds in all the marshes of Hawaii.

the great table-land on the summit of the mountain, which is very bare, the forest-belt only extending 6000 feet above the sea. Only scattered shrubs clothe the higher levels to the base of the cone.

From this point the huge dome of Mauna Loa conceals the third great volcano—namely, Mauna Hua-lei-lei—whose summit is one continued series of small craters, clustered all over the great cone, like tiny limpets on one large mother-shell. Each of these has, at some period, been the blast-chimney of the great furnace, and many prove how long they have been at rest by the large trees which have sprung up on their sides, while others give token of more recent activity.

A great eruption occurred about the year 1800, when broad rivers of lava poured down in irresistible might, and emptied themselves into the sea, driving back its waters, filling up a deep bay twenty miles in length, and forming the headland of Kailua, which runs about four miles into the sea, thus enlarging the isle by a wide belt of black volcanic rock.

An Englishman[1] who chanced to witness this eruption, tells of the irresistible impetuosity of the torrent, which carried all before it, destroying several villages, plantations, and large fish-ponds.

[1] Turnbull by name.

Trees, walls, and houses were all swallowed by the fiery stream, and even masses of hard ancient lava were melted up again, and carried onward by the flood.

Many were the offerings made to appease the fire-gods. Numerous hogs were thrown alive into the stream; but all proved in vain to stay the devastating flow, till the great Kamehameha, attended by all his chiefs and priests, arrived in solemn pilgrimage, and the king cut off part of his own sacred hair and threw it into the torrent, which, within a day or two, ceased to flow. Of course the royal hair was thereafter held in higher honour than ever.

When Mr Ellis ascended Hua-lei-lei twenty years later, he still found volumes of sulphureous smoke and vapour ascending from one of the lesser craters, which was apparently bottomless, as the stones which he threw into the chimney seemed to find no resting-place. It was divided by a rocky ridge from a large crater, about a mile in circumference, and about 400 feet in depth. Within it rose one small mound, with an aperture in its centre. Just beyond were two craters, each about 900 feet in diameter, and a little farther lay sixteen craters, all of the same construction as the large one—that is to say, with a small perforated cone rising from the bed of a pit-crater.

Many of these are partly embedded in foliage, and the ground is carpeted with *ohelo* (the cloud-berry of Hawaii), whose juicy red berries are doubly welcome in that thirsty region, where no water is found.

November 1st.

Last night was Hallowe'en—the great fire-festival of our ancestors—and here it has been celebrated in right royal style, for the fire-spirits have broken loose, and are holding high revel.

The flow is increasing rapidly, and is magnificent. The fire has burst out at so many points together that it has formed a new lake in the outer crater, in which fire-jets are spouting, and molten lava thrown high in mid-air, great masses of red-hot solid lava being tossed to a height of from 40 to 50 feet, while from the overflowing rim, or from weak points in the sides of the lake-basin, flow rivers of lava, forming a network of living, rushing fire, covering fully two square miles of the very ground over which I was walking only two days ago. It is a scene of marvellous beauty, and is inexpressibly fascinating.

From the edge of the crater-wall I have watched each stage in the growth of this strange new lake. I have seen it gradually rise higher and higher, till at last it overflowed in glowing streams, like

rivers of golden syrup, but brighter far—an indescribable colour. The centre of the lake is oftenest of a silvery grey, only crossed by zigzag lines of flame-colour and deep rosy-red; but all round its shores it is continually surging and upheaving great crested billows, which break in fiery surf and toss up clouds of fire-spray. Sometimes the whole lake appears to be in a tremendous commotion —heaving and trembling, as if acting obedient to some pressure from the furnace below.

About a dozen cones have formed in and around the lake, each a distinct fire-fountain, yet all flameless—only merrily flinging about the molten metal: a bouquet of rare fireworks.

These cones are miniature volcanoes—spouting liquid lava in the most sportive manner, playing gracefully like true fountains—spouting like intermittent geysers, and falling in showers of red hail —sometimes silently, sometimes with puffing and spluttering, varied with a roar like an angry bull; then a hush, followed by low moaning sobs.

Some of these explosive forces have not built themselves chimneys, or, if they have, the lake has melted them, for they only betray their existence by suddenly bursting beneath the surface, like torpedoes, and tossing up red rockets.

From the crag above, I looked down upon a heaving, restless expanse of dull red, almost en-

tirely coated over with a silvery-grey scum, intersected by flowing rivers of red gold. The ceaseless movement beneath the surface kept up a glancing, gleaming play of white and red light, glistering like quicksilver in motion. Sometimes there came a swirling eddy, like the rush of a Highland stream.

Then, again, the lava seemed to writhe and twist, as if in agonised contortions, and then commenced a violent boiling and bubbling preparatory to its bursting into active fire fountains. These play sometimes singly, sometimes alternately, sometimes a dozen burst into simultaneous action—like some marvellous display of rockets, flinging their fiery rain on every side, then dying away altogether, till the silvery coating spreads so evenly over the surface of the lake, that but for the sulphureous exhalations and columns of smoke, it might almost be mistaken for some cool refreshing pool. In truth, the white vapours which play so eerily among those black rock-masses, might well be morning mists floating upward from a quiet mountain-tarn.

This, however, is a delusion not to be cherished for long, especially towards sunset; for then the lake appears in its true glory, and all the wonderful chemical colours which were lost in the full light of day reveal themselves, the difference of the scene before and after sundown being that of any

huge smelting-works, as seen by day or by night, only magnified ten thousand times. Then the scale of colour varies from deepest chocolate, crimson, and scarlet, to orange, yellow, and primrose tints, and the silvery grey becomes tinged with pink and violet, while the solid rocks become ever more intense in their blackness; and the many-tinted sea plays around them, and dashes over them, and from time to time detaches some huge fragment, which falls with thunderous crash, reverberating from crag to crag.

As the twilight faded away, my kind landlord rigged up blankets and lanterns to make me a snug sketching-point on the hill above this house, whence I could watch the glory undisturbed, and attempt to preserve notes in colour, which may give you and others an idea, however faint, of the amazing scene before me. A full moon added its cool, pure light to the lurid crimson glow, which was reflected on all the overhanging clouds, as well as on the column of white steam which for ever rises from the Halemaumau itself; and these clouds being visible at a distance of many miles, must have declared plainly to our friends in Hilo that there was unusual activity at Kilauea.

I had little time for sleep. So often as I lay down, the fascination of the scene recalled me, and I watched fresh fountains and rivers of fire con-

tinually bursting forth, till their glow paled in the light of the risen sun, and only the points of most intense heat continued to show red, the general colour of the new lake and its rivers becoming wondrously silvery and glistening in the white light of day.

This has been a Hallowe'en much to be remembered.

I am longing to go down into the crater and have a nearer view of the rivers, but just now it seems doubtful where the fires may burst out at any moment, and it would be unpleasant to find our retreat cut off!

November 2, 1879.

I must write a few lines to-night—though the thrilling excitements of the day, and the glory now before me, make it really difficult to do so. For at this very moment there lies before me a vast river of fire—or rather a perfect network of rivers of molten rock, which, having burst from the newly created lake, are now meandering at their own wild will over the bed of the great crater, which, when I arrived here last week, was all cold and ghastly grey. You remember my telling you how we walked all over it in every direction.

All last night, and the night before, we watched the marvellous scene—fresh rivers bursting up every few minutes from one point or another. First

appears a glowing spot of fire in the black lava-bed. Then begins a spouting. Then a pool of molten lava forms, and presently a flow commences, which gradually increases till it becomes a rushing river.

To-day I have stood beside rivers of fire—some sluggish, some rushing fully twice as fast as I could possibly run. Roback, being an old sailor, says six knots an hour. I say, faster than the fastest river I know, boiling and turning over huge waves of molten silver—silver on the surface, but revealing the red stream below.

I started for the crater at daybreak, accompanied by Roback and a young American traveller. In the first instance, we made straight for the Hale-maumau, where the legitimate lake of fire ought to be. There is no apparent change in the south lake since I was there, but in the inner one the bed of the crater has sunk altogether out of sight. The house of everlasting burning is now a bottomless pit!

Descending towards the outer crater, we took a circuitous route, so as to avoid the fiery breath of the sulphur-cracks, and came quite near our first friend, the spouting cone, which spat at us in a most vicious and ungenial manner. Now it is the patriarch of a thriving colony of cones and chimneys and blow-holes in all stages of activity—some

hissing and screaming, like the escape of steam from high-pressure safety-valves.

Some are dome-shaped, built up like beehives by successive layers of hot lava, with only a small opening left at the top. Others are more open, like witches' caldrons, and curiosity compelled me again and again to snatch a glimpse of the fiery broth seething within ; but I knew that such stolen peeps were fraught with danger, as there was no telling at what moment the wrathful spirits might drive away the intruder with a shower of molten rock.

A multitude of similar cones have formed themselves on a high plateau where I stood last week, and act as fire fountains ceaselessly at play. This was as near as we dared approach to the new lake, which raged, and tossed its fiery spray, and, boiling over its banks, poured forth a river about 160 feet wide, which rushed down the incline with appalling speed. I reckoned that it flowed as rapidly as the Merced River above the Vernal Falls in the Yo Semité valley, which is about the swiftest stream known to me.

Dr Coan told me that he has seen lava flowing at the rate of forty miles an hour, rushing downhill through the forests on its seaward way, and leaping over crags in cascades of living fire. Once he traced a lava-flow which had thus fallen 700 feet at one bound. Imagine how grand must that

spectacle have been. I confess I watched even this small, comparatively safe river with some trepidation, seeing of how little avail would have been my swiftest running had it come to be a question of seeking safety in flight; and, in truth, so numerous were the streams which intersected the whole bed of the crater on this side, that it was necessary for the guide to keep ceaseless watch to guard against the possibility of our retreat being cut off.

We took our stand on a raised hummock of lava, and were thus raised on a level with the lake, which had very capriciously selected the highest portion of the crater, so that all the rivers flowed down over a steep lava-bank. When they reached more level ground their pace became more sluggish, and we watched the simple process by which the lava, in cooling, assumes those wonderfully intricate forms which had excited our wonder and admiration.

The foremost curve of lava, of course, cools most quickly, and as it gradually solidifies, it travels slower and slower till it halts altogether, forming a hollow tube. Behind it comes a fresh wave, which, though checked in its course, forms a second rope or tube; successive pulsations form successive ridges, which assume precisely the appearance of great coils of rope, with every twisted strand clearly defined. Then comes a more impetuous wave. It partially overleaps the barrier thus raised, and

flowing almost at a right angle, repeats the process in a new direction—or perhaps, obeying some fresh impulse, it assumes folds like the richest drapery.

As the lava cools, it throws the vitreous element to the surface, which thus presents the appearance of myriad flakes of black iridescent glass. I brought away exquisite specimens of this, which I had watched thus solidify—some in flakes light as froth, and exceedingly brittle, others in coils heavy as iron.

Indeed so rapidly does the lava cool, that when we had gained sufficient confidence to follow our experienced guide, we were able to walk across many of the streams which only a few hours previously had been liquid fire. They were certainly very hot, but did not even singe our boots, though we could see the fire through all the cracks and broken places, not four inches below our feet. We were simply walking on a cooling crust. We sat quite close to some of the more sluggish streams—so close, that by stretching out our hands we could thrust in our sticks, just to see how quickly they caught fire.

As the streams of red fluid rock met the cool air, they seemed to become coated over with a thin, gleaming, silvery film, like that which forms on molten metal. They were seamed with cracks in every direction, formed by contraction in cooling—

a perfect network of tiny fissures, through which we saw the fiery glow within. Probably at a very short distance below the surface the lava was still in a fluid state, and perhaps moving along a subterranean passage. It was gruesome to think of what would befall us should the thin crust give way beneath us as we took short cuts across these horrible streams, and I confess I felt it was rather over-venturesome. But I reflected that, for love of wife and child, our guide doubtless counted his own life precious, so would not lead us into real danger.

It is strange how quickly one gets accustomed to new circumstances. When luncheon-time came, it really seemed quite natural to sit on the brink of a fire river, on a raised hummock of lava, and enjoy our sandwiches (and oh, how we prized one orange, divided among three of us!), while watching the heaving, rushing lava-stream rolling and breaking up in huge half-cooled cakes of surface, to be swallowed and molten afresh in the fire-stream, which flowed within ten feet of us. Roback fished out lumps of very cohesive liquid lava on his stick, and "made specimens" by embedding copper coins in the hot lava, which in a few moments became solid lumps. Of course the lava thus manipulated does not "set" properly, and is of no value whatever as a specimen; so the manufacturer undergoes great

heat and exertion to produce a memento infinitely inferior to those so freely offered by nature. But people who visit volcanoes are all supposed to want coins in lava, so they may as well be gratified.

I need scarcely tell you that I preferred to secure specimens of the genuine article, which my kind host is now carefully packing in soft *pulu* fibre, that they may travel safely to England.

We passed the whole long day in the midst of these fiery rivers, and at last turned to leave them with infinite regret. I think my chief feeling to-night is of thankful wonder that we should have returned from such an expedition as safely as from a ramble in English meadows, without so much as a boot singed or a garment damaged. In truth, as we toiled up the steep ascent to the house, I could not but compare myself and my two comrades to the three Hebrew children, emerging unscathed from the midst of the fires in the burning fiery furnace.

Knowing my limited powers of walking, you will wonder how I could possibly get over so much ground. I suppose the all-absorbing interest gives one double energy; and then the lava is really not unpleasant to walk upon. The glassy sorts are so crisp and brittle that it is like walking on vitrified cinders, and even the most slippery, hummocky tracts are very little worse than the rocks over

which we have so often scrambled along our own Morayshire sea-coast. And there we have no delightful sulphur steam-bath to refresh us at the end of a weary day!

Now I must go out to look my last on the fire rivers, for to-morrow my landlord goes to Hilo, and I have decided to take advantage of his escort and return thither, the general impression of all here being that this flow has already begun to subside, and will very soon cool, and that the Halemaumau will very leisurely resume its ordinary condition.

But who can tell?

CHAPTER X.

RETURN TO HILO—A WEDDING—A "SPATE"—A HAWAIIAN FAIR.

HILO, *4th November.*

HERE I am once more safely in this pretty pleasant village, under the hospitable roof of the Sheriff. How fresh and green everything looks after the bareness of the new, unclothed earth! The giant bamboos have surely grown larger, and the sugar-canes and bananas ranker and more green, than when I left them a week ago. As to the human beings, their kindness and cordiality are beyond all words. I have been welcomed back like an old friend returned from a perilous journey.

Yesterday morning I was out long before dawn, in the heavy dew and the clear moonlight, to have a last look at the fiery rivers ere their light paled before that of the day-star. Then came the rosy flush on Mauna Kea's snow-crown. At the moment of sunrise, a vivid rainbow appeared above the Halemaumau, forming a perfect circle,

the full moon forming, as it were, the key-stone of the upper arch. It was a very brilliant bow. Strange to say, the previous day at the same hour I saw a perfectly colourless rainbow, which might have passed for a lunar bow.[1]

A few minutes later, I was sitting quietly on the verandah, and Mr Lentz and Kalahea were saddling my horse, when the young American, who was standing about fifty yards from us, rushed up crying, "Do you feel it? do you feel it?" "Feel what?" we said. "Why, the earthquake. Didn't you feel the earthquake?" We all maintained that he was dreaming, not having felt the slightest movement at the house; but happily he was able to prove his accuracy by pointing to a cloud of dust rising from the very bank on which I had sat the first day, part of which had fallen in.

When, late in the evening, we reached Hilo, the first questions put to us were relating to the earthquake, which had there been felt as a severe double shock.

So partial is the line of country affected by the subterraneous action.

[1] In the autumn of 1881, I witnessed a very remarkable effect of rainbow, from Crieff in Scotland. Looking *towards* the sun, which was very near setting, my attention was arrested by a colourless bow surrounding the sun, and showing clearly against a dark fir-wood. It was so precisely like a lunar rainbow, that I instinctively turned to look for the moon, and there in truth she was, almost full, and just risen. Surely this is a very unusual phenomenon?

To avoid having to hurry Caution over the hateful lava-track, I started very early, and so had time for a quiet rest at the half-way house ere my good landlord overtook me. I there found a party of native women plaiting hats, and making *leis* of common feathers in imitation of the really valuable ones. Dressed in bright calico *holukus*, and adorned with *leis* of gay blossoms, they formed a pretty group, and I had leisure to admire them.

They again recommended me to rest on the gorgeous four-post bed; but having been caught in a heavy shower, I felt damp and rather muddy, and so preferred a soft *pulu* mattress and pillows, which they laid down for me in a corner. Of course their English was as deficient as my Hawaiian. Both were *nil!* but their kindly sympathy made all smooth.

Once more *en route*, retracing our former track, travelling painfully across the lava — lingering longingly in the lovely belt of forest, and cantering cheerily over the last four miles of grassy plain, till we arrived here, oh so tired!

Kind Mrs Severance, well versed in the care of weary volcano-pilgrims, comforted me with a bowl of delicious hot soup, and in a very few minutes consigned me to a cosy bed, in which I quickly forgot all cares of travel.

Her husband has been summoned to Waimea on

sheriff's duty, and Miss Chapman has accompanied him, in order to see the scenery, some of which is fine.

Waimea is an inland settlement, an old mission station, and has the dignity of possessing a Court-house. It is an extensive sheep and cattle station, and is noted for its grassy plains and good pasturage. It lies between the green Kohala hills on the one side, and on the other, a strange frieze of red tufa-cones, some of which are about a thousand feet in height, and form characteristic outworks round the base of Mauna Kea.

This has been a delightful day of rest. Several of the kind, friendly neighbours have called, and we have had most interesting talks over their personal experiences of the volcano and its actions.

HILO, *7th November.*

This has been a day of great excitement in Hilo. No less an event than a wedding. All this little community of true friends have combined in kindly little ways to do honour to the occasion, and the simple *trousseau* and bridal feast have involved as much consideration and discussion as many a more showy but less hearty ceremonial elsewhere.

Unluckily, the weather proved unpropitious. It rained pitilessly, but at 8 P.M. we all donned our

waterproofs and thickest boots, and (happily hitting a favourable moment between the showers) trudged about a quarter of a mile through deep mud to the church to witness the ceremony. The happy young couple entered arm in arm, attended by a bride-maiden. The bridal party and the officiating minister took their places on either side of the pulpit, which was decorated as usual with two large bouquets (for the *mauka* and the *maikai* sides!), which on this occasion were composed of lovely white flowers.

After the service, which was chiefly taken from the English prayer-book, congratulations were renewed, and then the younger members of the community adjourned to spend a social evening of music and *petits jeux innocents*, and to share the bridal gold and silver cake, the making of which has been a matter of earnest thought and deep consultations.

Sunday, 9th.

It has never ceased raining since Thursday. A steady pitiless downpour. Every river and stream in the country is in flood—and what floods! A spate in the Highlands is orderly and well-regulated compared with such freshets as these. Hilo lies between two such torrents—the Wailuku and the Waiakea.

This morning I was awakened at dawn by the roaring of the Wailuku river, which rushes down from the mountain to the sea, just behind this house, only a field intervening. In general it is a bright sparkling river, its clear waters leaping joyously over ferny caves formed by lava-bubbles, racing and rippling over shallows strewn with great boulders, lying dark and peaceful in quiet pools where flower-crowned girls and laughing children make merry, and at last becoming "broad, and deep, and still as time," ere it enters the sea.

To-day what a change! Awakened by the roaring of the maddened waters, I hastily threw on a large waterproof ulster, and ran barefoot across the saturated field to the high steep bank beneath which it passes.

What a sight was there! One wild expanse of mad, muddy red waters, boiling, seething, tossing in the wildest confusion—a raging torrent roaring and thundering over black rocks—an awful cataract of muddy foam rushing madly to meet the terrific breakers of the raging discoloured ocean.

Could that sea of red mud, with those awful mountains of surf, be indeed the lovely blue Pacific we were wont to see? I wish it were possible to give you an idea of the scene. In general the river takes a graceful leap just below this house, falling to a considerable depth. To-day there is not an

indication of a fall there. Only the current heaps up the waters a little on one side in a huge swirl, as they rush onward in an almost level flood. And the long rocky island has altogether disappeared, its position being only marked by the waters heaping themselves up in one huge breaker.

It was a magnificent sight, but appalling. Mrs Lyman's two sons presently appeared, and said that they had seen the fire-waves in Halemaumau tossing and raging as furiously as these.

I sat on the bank for nearly two hours, till I was fairly stupefied by the awe and grandeur of the scene, and by the deafening roar of the waters. Imagine what it must be to live in some of the many valleys watered by the unbridged floods, and being perhaps caught on the wrong side of the stream, and left out in the desert for days ere the floods are passable.

Just imagine that between Hilo and Laupahoehoe, a distance of thirty miles, there are no less than eighty-five gulches, each with its stream, and one or more waterfalls. I observe that Brigham says there are only sixty-five streams—and as his statement is in "a prent buke," it must be true; but people here tell me eighty-five. Either way, it is a large order!

Now just imagine how pleasant it must be to start from Laupahoehoe in moderate rain, and after

you have crossed the first thirty or forty streams, to find that the whole are in flood, and that retreat or advance is alike dangerous. I am sure Mrs Severance must be anxious about her husband on his homeward ride from Waimea. I think his charge is to return thence to Honolulu, so she escapes this risk.

All the others have gone to church, but I could not tear myself away from the river. One doesn't often see such a sight, and I must watch its changes. This "roar of the water-floods" and "voice of many waters" is a grander sermon than ever was uttered by human lips.

I spoke just now of the rock-island. I must tell you of a curious custom formerly connected with it.

In old heathen days, and indeed in much more recent years, when barter was the only medium of exchange, fairs were held periodically in various parts of the group, and to these, each isle brought the product or manufacture for which it was famous. Thus Hawaii was noted for a very strong durable kind of bark-cloth called *mamake*, much prized for winter wear. Oahu produced lighter cloth. Kauai was famous for its canoes and paddles. Certain districts excelled in the manufacture of *poi*, others in the preparation of dried fish, or the weaving of mats, or rearing of pigs and poultry. Whatever any one had to dispose of, was brought to the market.

The principal of these fairs was held at Hilo, on the banks of the Wailuku river. Here people from all parts of the group assembled to exchange their wares; and, strange to say, instead of taking up a position on the grassy hills, they arranged their property in heaps on either side of the stream, in accordance with certain municipal regulations. As each bargain came under discussion, the articles of exchange were placed on a certain rock, where they could be freely examined in presence of paid inspectors, who were appointed arbiters in case of disputes.

Every one who crossed the river had to pay toll.

I have heard a vast number of most interesting stories of old days, and as soon as I can find time to think them over, I will write them out for your amusement. But I cannot hope that, written, they will possess for you the living interest they inspire when related by men and women who were in many cases eyewitnesses of the things they relate. Some of these have reference to the volcano, and others to heathen times.

Now I must go and mount guard over the river!

Monday, 10*th*.

The flood is gradually subsiding. Last night we went down and stood on the bridge (fortunately there *is* a bridge now!), and watched the awful

turmoil at the meeting of the river and the sea—the mad torrent rushing down from the mountain, the raging billows dashing in from the ocean,—the wild wrestling of these warring waters.

It was a grand spectacle—awe-inspiring beyond description.

This morning the wild tumult was somewhat lessened, but it was still a sight to haunt one's memory; and it was a relief at last to cross the bridge and follow the course of the river for some distance up the other side, passing bowery native homes, and a small native church, till we came to a large sugar-mill. The view of the town and palm-fringed harbour from this point is very lovely, with the deep channel of the river leading the eye away to the broad blue Pacific.

Tuesday, 11*th*.

This has been a most enjoyable day. I wished to get a sketch from the high ground we explored yesterday, so Helen caught and saddled her mother's horse, and made him carry both me and all the sketching gear. We took up a position beside a great *pandanus*-tree. A number of women were washing clothes and bathing in a pool just below us, and formed a picturesque item in a beautiful scene. Several came to see what we were doing, and talked to Helen, who speaks Hawaiian per-

fectly. I thought they were singularly gentle and pleasant in their manners.

As usual, this evening various friends have dropped in, in the easy sociable way which is in favour in this kindly village. As a matter of course, the conversation turned on "the spate;" and I heard of many a wild adventure connected with crossing these terrible gulches during freshets, though, of course, no one would dream of doing so who could possibly avoid it.

But far more fascinating to me are the stories of the volcano, heard from the lips of those whose lives have been imperilled, and their property in many instances destroyed, by earthquakes and fire-floods. Some of those told to-night were so vivid that (like a child after a ghost-story) I quite dread falling asleep, lest I should see these awesome sights in my dreams.

A glance at the following table will convey a good idea of the distribution of the rainfall of Hawaii throughout a year:—

RAINFALL FOR HILO, 1880, KEPT AT PAPAIKOU, BY HITCHCOCK & CO.

	Inches.		Inches.
December 1879	4.72	June	8.39
January 1880	13.97	July	18.21
February	32.52	August	8.91
March	13.98	September	14.43
April	13.98	October	14.50
May	7.76	November	3.76
		Total	155.23

1878—From January 1st to December 31st ..... 70.46 inches.
1879—From January 1st to December 1st.....112.43 ,,
1880—From December 1st, 1879, to December 1, 1880.....155.23

CHAPTER XI.

A SHORT ACCOUNT OF THE PRINCIPAL ERUPTIONS OF MAUNA LOA BETWEEN THE YEARS 1789 AND 1877.

HILO, *November 12th.*

EVERY day that I live in this peaceful happy community, I am more and more impressed with the simple childlike trust which alone can make life here endurable. There must be a perpetual feeling of uncertainty, and a constant possibility of danger, ever present in the minds of those who make their homes within thirty miles of a mighty ever-active volcano, whose ceaseless internal action causes the solid rock to tremble, and the whole isle to quiver with convulsive throes. In fact, these Hawaiians are at all times subject to earthquakes, and to the sudden rending of great chasms in the ground on every side of them; tidal waves and awful landslips may occur at any moment; and of no people upon earth is it more truly said that they know not what a day may bring forth.

But (while habitually contemplating such scenes as these, and probably taught by actual experience) they are for the most part inspired with an intensely real faith in the protection and personal care of One who, ruling over all, makes the flaming fires His ministers, to do His bidding only. To them, His promise to be a wall of fire round about His people, is no imagery, but a true nature-parable, drawn from familiar scenes.

So, recognising that (even when the strong foundations of earth are shaken, and the solid rocks riven) the mountains and hills, wind and storm, fire and vapours, are all alike fulfilling His word, they abide in quiet trust—ready, if need be, to forsake their happy homes at His bidding, yet encouraged by past experience to believe that the angel of the Lord does verily encamp around them to deliver them.

It is no tradition of old days, but a series of facts within their own memory, that they relate, when, with hushed and earnest voices, they tell how often in past years danger has been so imminent that they have stood face to face with death, and yet have been delivered at the moment when peril seemed most dire.

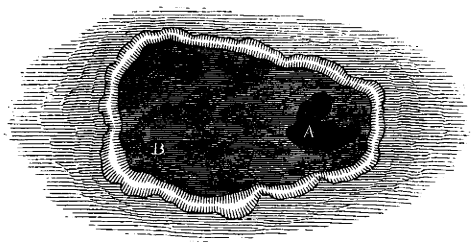
Within the last few days many friends have come from far and near to talk over our expedition, and see the sketches I have been able to secure. Many

of these are old inhabitants, who for many years have noted every change of the volcano ; and from the lips of one after another I have heard of the ever-varying wonders beheld by each.

Above all others, as an exponent of volcanic phenomena, is the Rev. Titus Coan, who, since his arrival in these isles in 1835, has personally inspected every event of any special interest, either within the crater, or wherever else the fires may have found vent. The same energy which enabled him to accomplish an amount of work in the mission-field almost unprecedented in any one life, also impelled him to face such danger and fatigue in the pursuit of scientific investigations as enable him to speak as an eyewitness of scenes which make one's pulse run high even to hear of.

These he has most graphically described in hundreds of letters, written year by year to private friends. Some have appeared in Silliman's Journal, and these and others have been largely quoted by almost every writer on Hawaii. From his lips, and those of many other friends, as well as from the published records of W. T. Brigham and previous travellers, I have collected the following notes, in order to mark the changes which have year by year occurred actually within the crater of Kilauea, as well as the principal events which form the history of volcanic action in recent times.

The accompanying diagram may be considered rudely to illustrate the general form of the crater



with its encompassing cliffs, which average 600 feet in height. The area enclosed is about nine miles in circumference. A marks the site of the Halemaumau, which sometimes contracts to one-sixteenth of a mile in diameter, and again has extended to four miles in circumference. B marks the site known as the north lake, which is now extinct.

In 1823, the Rev. W. Ellis visited Kilauea. He describes the general crater as being in a state of terrific ebullition. He says: "The south-west and northern parts of it were one vast flood of burning matter, rolling to and fro in fiery surge and flaming billows. Fifty-one craters of varied form and size rose like so many conical islands, either round the edge or from the surface of the burning lake. Twenty-two constantly emitted columns of grey smoke or pyramids of brilliant flame, and several of these simultaneously vomited forth streams of

lava, which rolled in blazing torrents down their black indented sides into the boiling mass below."

"There were also a number of small craters in vigorous action, situated high up the sides of the great gulf (which was sunk about 800 feet below us). The streams of lava which they emitted rolled down into the lake, and mingled with the melted mass below. The sides of the gulf were perpendicular for about 400 feet, and rose from a horizontal ledge of solid black lava extending completely round. Beneath this ledge the sides sloped gradually towards the burning lake, which lay 300 or 400 feet lower." As he walked round the upper edge of the crater, over a layer of indurated sand, the natives entreated him on no account to scratch or strike the sand, as it would displease Pélé, and be followed by an eruption of lava.

About half a mile from the north end of the crater he found several pools of sweet fresh water—a most grateful discovery after travelling for about twenty miles over a barren desert of the driest lava. The water was quite cold, and was formed by the condensation of the steam, which ascended from deep chasms, and which, on coming in contact with the cold mountain-air, was driven like drizzling rain into hollows in the compact lava, where it gave nourishment to reeds and rushes and tall

grasses, which grew luxuriantly, and in their turn sheltered the pools from the heat of the sun, so that the water thus naturally distilled from the noxious sulphureous vapours was as cool as it was pure—a boon to thirsty pilgrims.

His description of the sulphur-banks answers precisely to their present condition,—"a bank about 150 yards long and about 30 feet high—very hot—its surface rent by fissures, whence thick vapours continually ascend." He, too, remarked on the intensified heat of the sulphur round the many small apertures. He says: "Their edges were fringed with fine crystals resembling what are called flowers of sulphur. Those procured near the surface were crystallised in beautiful acicular prisms of a light-yellow colour, while those found three or four inches deep in the bank were of an orange-yellow, generally in pyramids, and fully an inch in length. The adjacent stones were incrusted with sulphate of ammonia and sal-ammoniac."

In 1825, the Rev. C. S. Stewart still found the general crater in full action. He saw about fifty-six small conical craters, many of which were in full action—"rivers of fire rolling in splendid coruscations among the labouring craters"—and a whole lake of fire to the south-west. He judged one cone to be about 150 feet high. Lieutenant Malden, who accompanied him, calculated the whole

depth of the crater at 1500 feet—the black ledge to which they descended being 900 feet below the upper cliff—the circumference of the crater at the bottom being about six miles, at the top about nine. Suddenly, after terrific noises and rumblings, a dense column of smoke rose. Flames and red-hot stones were shot up to a great height, then molten lava, from a cone apparently long dead, and then appeared a lake two miles in circumference.

In 1832, the Rev. J. Goodrich arrived just after a great eruption. The lava-bed had sunk 450 feet below its former level, and the only volcanic action was within Halemaumau.

In 1838, Captain Chase and Captain Parker saw a surface of four square miles covered with cones and lakes of fire. They counted twenty-six cones, of which eight were active. Six small lakes boiling violently. On Halemaumau, which was a lake, they saw a large island, which broke up, leaving a vast pool of liquid lava. In the same year Count Strzelecki says the Halemaumau covered an area of 3000 yards, encircled by a wall of scoriæ 50 yards high.

In 1839, Captain Shepherd estimates the Halemaumau at one mile in length, and one and a half in breadth.

In 1842, the lava had formed a complete dome, covering the lake of fire as a pie-crust. The only

fires visible were flows which forced a passage at points about 40 feet below the summit.

In 1844, the Rev. C. S. Lyman found a level outer crater: no wall round Halemaumau, which was one very large pit, with fire-waves within 15 feet of the level surface.

In 1846, he found it covered with a dome about 12 feet high, and not more than a foot in thickness. The fiery lava could be seen through two small apertures, and was within 15 feet of the summit.

About 1848, the Rev. Titus Coan says the lake had become crusted with a thick stratum of lava, which was gradually raised to a dome nearly 300 feet in height, covering the whole lake, traversed here and there by rents and fissures, and studded by an occasional cone.

In 1849, he speaks of violent roarings and detonations from the cones on the dome. At this time there was only one small orifice on the summit; to this he rashly climbed, and looking in, beheld the fire raging below. The dome resembled a cracked cake, with fire visible through the cracks.

In 1852, he speaks of a complete dome two miles in circumference.

In July 1855, he says: "The great dome is throwing up columns from its horrid throat to a height of 200 feet, while its walls tremble at the fury of the waves which rage within." In the outer crater he counted sixty fiery lakes, and the whole surface was dotted with burning cones.

In October 1855, he says: "The great dome over Halemaumau is swept away, and a jagged rim from 20 to 60 feet high now encircles it. The fusion may be 100 feet below. There are now about a dozen lakes of raging lava in Kilauea.

In 1865, Mr Reid told me he counted sixteen lakes in the outer crater. He lay all night on the crag-wall, and watched them quietly overflow, till one-third of the crater was a bed of fire.

In 1866, Mr Sessan told me he found the Halemaumau one lake without any division, surrounded by a low wall. The fire was pretty quiet, and within 10 feet of the top of the wall. The north lake, which is now extinct, was a pit of liquid fire 200 feet long by 500 wide. Between this and the Halemaumau were seven other lakes, which increased in size till 1868, when the great flow in Ka-ù occurred, and the lakes disappeared. For months there was no fire, only smoke.

From January to March 1868, these lakes were

in ceaseless action, and from one large blow-hole volumes of steam were thrown up at intervals of a minute with loud roaring. Suddenly this ceased, and the whole bed of the crater was overflowed with incandescent lava. On the 1st April the bottom of the Halemaumau fell in, sinking about 600 feet. Fully two-thirds of the floor of the outer crater also caved in in the middle, and sank from 100 to 300 feet, leaving an outer rim raised round the base of the cliffs. Mr Reid tells me he descended about 300 feet into the Halemaumau, climbing down the broken lava. He could see no trace of fire, only steam and smoke. It was a great pit without any division.

It was at this time that the terrible eruption occurred at Kahuku (see later), and also that the earth was rent by a steam-crack thirteen miles in length, which has necessitated the alteration of the road to that extent—a crack which to this day continues to vomit forth steam.

In July 1868, seven or eight blowing cones formed on the walls of Halemaumau, and from these, molten lava poured into the lake, and soon filled it up.

In 1872, there was one lake full of fire, and with high crags. In 1873, Mr Nordhoff saw two lakes filled with a raging, roaring, restless mass of fiery matter dashing in ceaseless tumult. The two

lakes were separated by a narrow ledge of lava, which was sometimes overflowed and melted down. Standing upon the northern bank, he could see both lakes, at about 80 feet below him. Three months before his visit, the lava had overflowed the high banks on which he stood, and had poured itself into the outer crater. Six months later, it again rose almost to the surface, and forced a passage for itself through one side, thence flowing in a vast river of fire into the main crater.

In January 1874, Miss Bird found one irregularly shaped lake almost divided by a lava-wall. The height of the crags enclosing it were about 40 feet on one side, and 150 on the other. The lake lay 35 feet below the spot where she stood, and was intensely active—having eleven fire fountains in ceaseless ebullition, but producing no smoke. On the farther side was an expanse entirely occupied with flowing cones and jets of steam—a region of mysterious sounds, and veiled by rolling clouds of smoke and vapour.

In the following June she returned, and found the encompassing crags raised to a height of 500 feet above the level of the outer crater. Standing on this elevation, the fiery lava within Halemaumau lay about 80 feet below her, and formed two lakes, separated by a solid barrier of lava about 300 feet broad and 80 feet deep. There were

no playful fire fountains, but raging, sulphureous waves and whirlpools, a thing of awful sublimity, accompanied by fearful detonations and thundering crashes, and by gases so stifling as to be dangerous both to eyes and lungs.

In January 1878, the crag-walls of the Hale-maumau were 175 feet in height, and the fire-lake was full to within 25 feet of their summit, being thus raised, as in a cup, to a height of 150 feet above the outer crater.

In November 1878, it was still one large lake, and so full that the dancing fire of its waves was visible from the hotel. There was also a large flow in the outer crater. Of all the rapid changes that occurred within the bed of the crater in 1879, I have already spoken.

Of course the more important flows are those which have burst forth outside of lawful limits, choosing their scene of action without respect of place or person. These, however, I believe to have almost invariably occurred in connection with activity in the summit-crater of Mokua-wéo-wéo. Kilauea appears to be the outlet of an independent furnace, and its exploits are generally confined to the limits of its own encircling rock-wall. In looking at a map of Hawaii, such as that furnished by Brigham, and marking the course of the principal lava-flows, one is forcibly reminded

of a star-fish, of which Mauna Loa is the body, and the lava-streams form the long irregular arms.

The first eruption of which we have a distinct record was in 1789. It was accompanied by fearful earthquakes, terrific darkness, and thunder and lightning. An insular war was raging at the time, and a large body of men marching from Hilo to Ka-ú were encamped by the volcano when this commenced.[1] Terrified, they halted two days. On the third they divided into three companies, and started at short intervals. Of the foremost company, some were burned to death by a shower of sand and cinders, thrown to an immense height, and overwhelming them. The third body escaped almost uninjured; but what was their consternation, on coming up with the centre party, to find them all corpses — men, women, and children! This eruption differs from all others in that no lava is mentioned — only sand and scoriæ, with volumes of steam and sulphureous vapour. Just such an eruption as that which overwhelmed Pompeii.

In 1823, there was a very grand eruption, with a lava-flow thirty miles in length.

In 1840, the bed of the crater of Kilauea sank about 300 feet, and her fires vanished. They travelled under ground with roaring and much

[1] I shall have occasion to refer to this catastrophe more in detail in speaking of the wars of the great Kamehameha.

commotion, till they broke open a passage in the district of Puna, whence they rolled onward, burning forests, villages, and plantations — a terrific flood, from one to three miles wide, and from 12 to 200 feet in depth, varying with the extreme irregularity of the ground; and having travelled a distance of 30 miles in four days, it entered the sea 17½ miles from Hilo, leaping a basaltic precipice about 50 feet in height, and forming a magnificent fire-cataract a mile in width.

Just try for a moment to imagine such a scene —a river of liquid lava, three miles in width, burning its awful way, and throwing up dense clouds of smoke, which darkened the sun, and so veiled the fire-flood that those standing on one shore could not see the farther side: a Mississippi of molten mineral, sometimes widening like a great lake, then narrowing as it rushed through deep valleys, finally leaping into the sea in a cataract like Niagara, a raging blood-red torrent. For three weeks it continued to pour into the ocean, which boiled and raged madly. Its waters were heated for twenty miles along the coast, and myriads of dead fish floated on the waves. So intense was the glare, that at places forty miles distant, fine print could be read all night by its lurid glow; and ships a hundred miles at sea beheld the strange light.

When the flood was somewhat cooled, Mr Coan explored its course. He found that while the heat of the main stream had been so intense as to burn everything in its way, thousands of green trees lay heaped along the margin, forming a totally impassable barrier. The fire-stream, closing round their trunks, had burnt through them so slowly, that it had itself become solid ere they fell, so that the branches were only charred. But the buried portion of the trunks had continued to smoulder, till they turned to ashes, leaving smooth moulds with their perfect impress, forming deep round holes in the lava, in some places about 25 feet in depth, thus affording a correct gauge of the depth of the flow.

In 1843, Mauna Loa broke out near the summit. Two large craters were formed, and two streams of lava poured out from fissures, one flowing westward towards Kona, the other towards Mauna Kea, when it divided into two streams, one branch turning towards Waimea, the other towards Hilo.

Dr Coan, junior, says: "Never shall I forget the impression of that time. The evening was clear and quiet, and as the night grew dark, a strange light was noticed upon the summit of Mauna Loa, whose serene blue dome formed the wall of our western horizon. A clear white flame, whiter than the moon, deeper and stronger than any star, rested upon that distant crest, and grew

momently more vivid as we gazed upon it. The mountain was really aflame: no fitful jets of fire or whiffs of heated stones as in other volcanoes, but a steady column of white hot lava, playing noiselessly in the still night, yet emitting a light so powerful that I could read by the fiery splendour, *that cast strong shadows against the moonlight.*

"For four weeks this scene was nightly continued, with little change, while by day great volumes of smoke obscured the island. The flow of lava continued for three months, pouring forth about seventeen billions of cubic feet of lava, and flowing more than twenty miles from the mountain."

Of course "Father Coan," the faithful high priest of the volcano, traced the streams to their source, with much effort and peril. He was overtaken by a terrific thunderstorm: the heavens seemed ablaze, and the tempest raged all night without intermission. Toiling over ridges of roughest lava, and then through deep snow, he at length reached the summit, and stood beside the yawning craters, which had, a few days previously, thrown up columns of lava to a height of 400 feet. They were then quiescent; but the awfully jagged rents told of the violence with which the fire had forced its passage. Lower down, the stream was crusted over with a roof of brittle lava, beneath which it flowed swiftly down a steep gradient.

Intense interest overcoming prudence, he ventured upon the treacherous crust, and found cracks from 20 to 50 feet in diameter, through which he was able to gaze down at the fearful river of fire below him. It rushed down the steep incline at a velocity which he estimated at not less than thirty miles an hour. Fragments of rock which he threw down upon the lava-torrent were whirled out of sight before they had time to sink into the fusion.

The natives who had volunteered to accompany him, and who carried the gourds containing food and water, had turned back affrighted near the base of the mountain. An American friend was with him; but both were wellnigh exhausted from cold, hunger, and thirst. Had they sat down to rest, they must either have been scorched or frozen; and they knew that had they ventured to sleep, they would never more have wakened. So there was nothing for it but to retrace their weary march of five-and-twenty miles over rugged lava, toiling up and down ridges and ravines, where again and again they fell, cutting and bruising themselves most grievously. However, pluck carried the day, and they eventually reached the green hillock at the foot of Mauna Kea, where their faithless guides were comfortably encamped in booths of green boughs.

In 1851, Mr Coan again saw columns of light

and smoke rising and falling on the summit of Mauna Loa. He found that they proceeded from an opening five miles from Mokua-wéo-wéo, and 1000 feet below the summit, whence poured a river of fire from one to two miles in width, and perhaps ten in length. This flowed into the Kona district, and only lasted four days.

In February 1852, an eruption took place near the summit of Mauna Loa. A light like that of a solitary star, which apparently died out in two days, but eventually burst out with amazing splendour 4000 feet below the summit, on the side towards Hilo. For twenty days and nights (says Mr Coan) it threw and sustained a column of liquid fire, 700 feet high by angular measurement, and from 200 to 300 feet in diameter. It was seen by ships upwards of 100 miles at sea, and clouds of cinders, ashes, and charred leaves fell on the decks of those approaching the coast. The stream of fire flowing hence was visible for thirty miles, when it disappeared in the woods within ten miles of Hilo. In twenty days it formed at the point of eruption a cone nearly one mile in circumference at the base, and 400 feet high, which remains to this day.

Mr Coan stood by this cone when in full action, and his description of the scene is appalling. Taking the pillar of fire as his guide, he started from Hilo with four picked natives, armed with

hatchets, knives, and clubs, to cut and beat a way for themselves through the dense forest, tangled with rope-like vines. In many places it was almost impassable, and only by sheer hewing their path could they advance at the rate of a mile an hour.

Four days and nights of this severe toil utterly exhausted his companions; so leaving them behind, he pressed on alone, crawling on all-fours along ledges, where the giddy precipice made it impossible otherwise to ascend the steep ravines. As he emerged from the forest, his eyes rested on Mauna Kea, robed in spotless snow, while from Mauna Loa poured glowing rivers of fire. Following the direction of these, he pressed onward with infinite difficulty, still beating his way through the dense thicket.

At length he reached the mighty fire-fountain. Its action was accompanied by terrific detonations and explosions. Jets of red-hot and white-hot lava were ejected with a force which threatened to rend the rocky ribs of the mountain, and, assuming every conceivable form, fell in cataracts of fire like fountains of spray.

I will quote from his own letter to Professor Lyman: "At last I reached the awful crater, and stood alone in the light of its fires. It was a moment of unspeakable awe. I seemed to be

standing in the presence and before the throne of God, and while all other voices were hushed, His alone spake.

"I was 10,000 feet above the sea, in a vast solitude untrodden by the foot of man or beast, amidst a silence unbroken by any living voice, and surrounded by scenes of terrific desolation.

"Here I stood, almost blinded by the insufferable brightness, almost deafened with the startling clangour. . . . The fountain of fusion was situated 2000 or 3000 feet above this lateral crater where I stood, and, pressing down an inclined subterranean tube, escaped through this valve with a force which threw its burning masses to a height of some 500 feet. . . . First a rumbling, a muttering, a hissing, a deep premonitory surging; then followed an awful explosion, like the roar of broadsides in a naval battle.

"During the night the scene surpassed all powers of description. Vast columns of lava at a white heat shot up continuously in the ever-varying forms of pillars, pyramids, cones, towers, turrets, spires, and minarets. Equally marvellous was the variety of colour displayed—all alike brilliant, but changing so rapidly that we could hardly turn away our eyes for a moment.

"When issuing from the mouth of the crater the fusion was white-hot; but as it rose through the

air it changed, first to light red, then a deeper shade, followed by a glossy grey, with patches of shining black—all these and many other tints intermingled in ceaseless movement. The descending showers poured a cataract of fire upon the rim of the crater, and the molten flood of millions of tons of sparkling lava rolled down the mountain in a deep broad river at the rate of, probably, ten miles an hour. It flowed from a large fissure at the base of the great new cone, which was rapidly being built up.

"The heat was so intense that I could not approach within forty or fifty yards of the pillar of fire, even on the windward side, with the snowy breezes coming down from the mountain nearly 4000 feet above. On the leeward side of the stream the hot cinders, ashes, and burning pumice forbade approach within a mile or more."

In August 1855, there occurred the most awful eruption on record. It commenced near the summit of Mauna Loa; and you can easily understand that when a flood of liquid rock boils over its mighty caldron at so tremendous a height as 14,000 feet above the sea, the position of persons living at the base of the mountain is not one of enviable security.

In the present instance it overflowed in a stream of sufficient volume to overwhelm the whole town

and harbour. In some places it was three miles wide; then, finding more level ground, it expanded into lakes from five to eight miles broad; then, parting, it formed a network of rivers, burning their way through the forest, and leaping precipices in a succession of cataracts and rapids. One hideous feature of this period of horror was the pollution of the rivers, which became so impregnated with pyro-ligneous acid, draining from the vast tracts of burnt forest, that the water in many of the streams, and even the Wailuku river, became as black as ink, and so offensive in smell, that it was impossible to use it for the supply of town or ships.

For six months this lava-flow advanced steadily towards Hilo. Day by day parties went up from the town to report on its progress, anxiously scanning its approach to such ravines and valleys as would have offered a natural seaward channel.

Great was the alarm of all when it was found that the overwhelming flood had arrived within six miles of the town, and that there was apparently nothing in the nature of the ground to check its steady onward progress straight to the sea.

Then all the people assembled in the churches to humble themselves exceedingly before the Lord of the universe—entreating Him that He would be

pleased to turn away His terrible river of fire, and preserve the homes of His people. You may well believe that there were no half-hearted, sleepy worshippers in those congregations, but all with one voice united in such true and earnest prayers as are never offered in vain.[1]

That cry for help and protection was heard in heaven, and answered speedily. At the very moment when danger seemed most imminent, and it appeared as if nothing could avert the destruction of the town, the danger was most literally turned aside. The course of the river was most unaccountably diverted; the stream divided, and flowed to the right hand and to the left; and though the great roaring furnace on the mount continued in full blast for twelve months more, not one foot nearer to the town did the flood come. It gushed out laterally in streams sixty miles in length, depositing millions of tons of lava along its track, and covering nearly 300 square miles of land.

In the course of this eruption, Mr Coan made frequent expeditions to the scene of action. He followed the course of the fire-river. By its brink immense trees were burning as they stood; others had fallen, and lay blazing on the ground. Higher

[1] In the concluding chapter, see the story of still more imminent danger in the year 1881, similarly averted.

up the mountain, the river flowed subterraneously for upwards of ten miles; but here and there he came to openings from 20 to 100 feet in diameter, down which he could peer into the awful scene beneath him. At one point he reckoned that the river ran down a declivity of from ten to twenty-five degrees, its velocity being fully forty miles an hour. He traced this river to its apparent source —a series of cones formed over a great fissure in the mountain; but so insecure was the ground, so deadly the gases, so great the heat, that it was impossible to look down this horrid chimney. At midnight, chilled by the drenching rain, he and his native attendant camped under a large tree within ten feet of the flowing lava, and only elevated three feet above it—boiling their kettle and frying their ham on the red-hot lava. All night they kept awful vigil; nor did they forsake their post till the fire-flood had closed around them on three sides and their sheltering tree was ablaze. At another point they camped near the brink of a river, and watched a fearful conflict of the elements—the fiery cataract pouring over a precipice of about forty feet into a basin of deep water, which boiled and raged in vain, and was gradually all converted into steam.

At sunset the water in that rock-basin might have floated a large ship. In the morning it was

all converted into steam; the basin was filled up with solid lava, and the precipice was changed into a gently sloping plane.

As the lava-stream crept seaward, it moved more sluggishly, being at a distance of about fifty miles from the still active fountain; and it was a hideous sight to see it lazily spreading itself in vast contorted coils and pools, whose lustrous, glassy, metallic, surface was seamed with red, showing how ready for mischief was the uncooled stream below. And many a time the glittering crust gave way to the pressure within, and the red fusion burst out with an impetus which made the too curious spectators flee from the intense heat.

In the course of its wanderings, this lava-flow travelled about 60 miles, and overspread nearly 300 square miles of desert land.

About this time there was a discussion among scientific men as to the cohesive power of lava—some maintaining that it could not flow down an angle of more than five degrees without breaking. Mr Coan accordingly devoted much attention to this subject, and proved that the lava thrown out by the Hawaiian volcanoes was in such a condition of perfect fusion that it would run like oil down any angle—in fact, he found streams flowing continuously at angles varying from one to ninety degrees. He even observed it cleaving like paste

to the inward curves of rock, forming a thin glaze over the surface.

Nothing specially worthy of note seems to have occurred after this flow, till January 1859, when a splendid eruption broke out near the summit of Mauna Loa, flowing down towards the shore of North Kona in a succession of cataracts and rapids, leaping precipices of 10, 20, and 30 feet on its way, and shooting up jets and columns of igneous fusion to the height of 30, 50, and 60 feet, then widening into lakes, and forming a network of rivers, and reaching the sea at Wainanali in eight days, a distance of about sixty miles.

From 1865 to 1868, Kilauea filled up rapidly, with violent action. The great crater on the summit of Mauna Loa sent up columns of smoke and fiery light. From the southern slope of the great dome four separate streams of molten lava were seen to rush down the mountain-side. One was visible for fifteen miles. Suddenly they all ceased to flow. The red light died away, the smoke-cloud was dispersed. Evidently the safety-valves of the great mountain-furnace were closed.

No one was deceived, however—all knew that this sudden collapse augured no good. The stillness was ominous, for the great caldron was full to overflowing, and would assuredly find vent ere long. The only question was, where? Meanwhile

there was ample proof of the awful subterranean struggle that was going on. "The throbbing, jerking, quivering motions of the earth grew more positive, intense, and sharp — they were vertical, lateral, rotary, and undulating."

On this occasion Kilauea was in sympathetic action with the summit-crater. The whole bed of lava within its crater rapidly subsided several hundred feet, as the ice on a frozen pond gives way when the water is drawn off from below it; and for a distance of forty miles, from Kilauea to West Ka-ù, a succession of fissures, and jets of steam or spouting lava, betrayed the direction in which the fiery flood was forcing its subterranean channel.

On the 27th of March 1868, a series of earthquakes commenced: upwards of 1000 shocks were counted in five days. These continued in rapid succession until April 2d, when the most terrific earthquake known in the history of Hawaii occurred at about 4 P.M. The earth literally staggered like a drunken man. "First," said Mr Coan, "it swayed to and fro, north and south—then east and west—then round and round, up and down, in every imaginable direction, for several minutes, everything crashing about us, the trees thrashing as if torn by a mighty rushing wind. It was impossible to stand —we had to sit on the ground, bracing with hands and feet to keep from rolling over. The ground

itself rose and sank like waves. Horses and men were thrown to the ground — houses destroyed. Most of the Hilo people spent the night out of doors, fearing to remain indoors." Heavy furniture was tossed about, and crockery smashed wholesale as in a heavy gale at sea. In Mr Coan's own study a large library-table loaded with heavy volumes was thrown into the middle of the room and broken, two bookcases strongly fastened to the wall sharing the same fate.

Crevasse after crevasse opened everywhere; rocks rent, stone buildings and stone walls were torn in pieces. In Ka-ù, every stone wall and almost every house was thrown down; immense rocks fell; land-slips of earth, boulders, trees, mud, &c., came down from the foot-hills of Mauna Loa with thundering uproar; and men and beasts were terror-stricken, finding nothing firm whereon to rest. Houses slid from their foundations, and the inhabitants fled. Many lay upon the ground, holding on to shrubs, grasses, or stones. In some places the ground was so rent as to be simply a network of fissures, from which sulphureous smoke exhaled. Some of these chasms were about twelve feet across.

On the 2d April occurred a terrible avalanche, variously described as a landslip and a mud-flow. Bursting from the mountain-side in a torrent of mud half a mile wide and about twenty feet deep, it

dashed over a precipice of 500 feet, and rushing over a sloping grassy lawn at such speed as to make three miles in as many minutes, it overwhelmed ten houses, burying thirty-one men, women, and children, and many hundred head of cattle and flocks of goats, not one of which has ever been disinterred. Mr Reid told me that he alone lost one thousand cattle in the mud-flow, the poor beasts sticking in the tough clay. His theory of the outbreak is, that a stream of water flowed underground, and that the lava-stream struck the subterranean reservoir, and generated steam in such volumes as to blow open the hill. Forest-trees and stones all blew up.

One native, seeing the stream approaching his house, said Pélé was *hou-hou* (angry), so he took all the money he had in the house and threw it into the stream; and he declares the flow blew right over his head and landed beyond him. Finally, the mud-stream rushed into the sea in red, boiling, foaming waves, extending for three miles along the coast to Punalūu, the sea rising high upon the beach.

I received a thrilling description of this event from Mrs Fred. Lyman, whose home lay close to the scene of the mud-flow. Terrified by the incessant earthquakes, which had rent the walls of their house and outbuildings, she, with her husband

and children, fled to a hill which seemed a more secure position; and here they were presently joined by many natives who had been on the mountain gathering *pulu* (the silky down of the great fern), when they beheld the earth burst open and pour forth this awful flood from a spot just below where the lowest man was working. They stood helpless, watching it rush onward till it had overwhelmed their village, and buried their wives and their little ones. The Lymans managed to catch horses and rescue their saddles, and rode across to Hilo. As they passed by the Crater House at Kilauea, natives were at work in the *pulu* house, and had no idea that anything had happened.

At the same time, an earthquake-wave, twenty feet high, rolled in in foaming fury along the eastern and southern shores of Hawaii, sweeping away one hundred and eight houses, and drowning forty-six people, while many houses in the interior were thrown down by the earthquake. Furthermore, during the same hour, the whole coast of Ka-ú and Puna, for a distance of eighty miles, subsided, and sank into the sea to the depth of six or eight feet, destroying houses and gardens, and leaving the palm and other trees standing seven feet deep in water.

All this, and a vast deal more, transpired on the 2d April 1868. For ten days the earth never

ceased rocking like a rocking-chair, and trembling as if ague-stricken. The quivering was continuous, and a sheet of iron suspended in the house never ceased vibrating like a pendulum. Meanwhile the vast river of fiery fusion had started on its dark subterraneous way from Kilauea, evidently causing these rapid and terrible earthquakes, and rending the earth in countless places. One of these fissures, thirteen miles in length, continues perpetually steaming to this day.

After four days the fiery stream burst out on a wooded hill at Kahuku, in the district of Ka-ù, at a height of 3800 feet above the sea, where it rent a fissure nearly a mile in length, from which it poured with terrific fury, forming four vast fire-fountains, fluid as water, and blood-red. Sometimes they flowed together, so as to form but two fountains, and sometimes only one—*a continuous fire-fountain a mile in length!* It boiled with terrific fury, throwing up enormous columns of crimson lava and red-hot rocks to a height of 500 or 600 feet. The lava was ejected with a rotary motion—always toward the south.

Hence the flood rushed on in spiral swirls, pouring over each lip of the crevice; spouting up fifty or sixty feet in the air; falling among trees and shrubs, scathing, charring, and consuming them; tossing, raging, and roaring like the rapids of Niagara.

The stream rushed madly on towards the sea, sending off three lateral arms to the left, while the main body, nearly a mile wide, moved on to the brink of a precipice about 500 feet high, over which it poured in a burning cataract half a mile wide.

At the foot of the precipice lay a fertile grassy plain. Here the flood divided, and flowed in two parallel streams to the sea, a distance of four miles, thus forming an island about 300 feet wide, on which thirty head of cattle were imprisoned for ten days, till they were maddened with heat, smoke, and thirst. The igneous streams, plunging into the ocean, created a fearful tumult and raging, forming clouds of steam, and throwing up two scoriatic cones, which towered above the waters.

The lateral streams, which separated from the main body of the flow above the precipice, moved onwards for a few miles over a smooth grassy lawn, and then solidified without reaching the sea. One of these overwhelmed the home of Captain Brown, which was situated on pleasant pasture-lands, a most peaceful location. The children had already been put to bed, for it was after dark, when the family first became aware of a noiseless river of fire stealing onwards towards the house. They fled for their lives, all undressed, without one moment to save their goods. Crossing a small ravine, they reached a hill, where they paused to look back.

Ten minutes later they beheld the awful stream rush down the gulch in a series of cascades. The house was enveloped in flames; and in a few moments, the place which had been a pleasant homestead and a fruitful garden, was transformed into a fiery lake.

Farther on, approaching another house wherein a family of seven persons slept peacefully, the stream divided to right and left when within 150 feet of the dwelling. It reunited a short distance below the house, which was thus left standing on an island of about half an acre. Here the family were imprisoned for ten days. Their food and water were exhausted, and they had to keep incessant watch to turn aside small lava-streams, which crept like fiery snakes beneath their grass-hut. As soon as practicable, Mr Coan made his way to their rescue, and found them well and cheerful. Asking them how they had spent these hungry and thirsty days, they replied, "Na pule nui maheu,"—"We prayed much."

During this eruption about four thousand acres of good pasture were destroyed, besides the vast tracts of worthless ground which were covered by the lava-flow. In this thinly peopled region, two hundred houses and nearly a hundred lives were destroyed during this eruption.

Once more I quote Mr Coan's words: "The

fugitives came to Hilo like the messengers of grief to Job, one treading upon the heels of another. One said, 'My house is fallen, my wife and children are dead, and I am left alone to tell thee.' The next man said, 'I was in the field catching my horse, when, lo! the earth rent, and disgorged vast masses of mud, swallowing up my house and my lands, and family of thirteen; and I alone am left to tell thee.' Another hurried in and said, 'I was eating with my family in my house upon the shore, when suddenly a great wave struck the building; and of all in that household, I am left alone to tell thee.'"

I might repeat indefinitely these tales of parents made childless, children made orphans, husbands and wives sundered, or buried in a moment with their families and houses, during this terrible calamity, which changed one of the fairest pasture-lands of Hawaii into a region of desolation—the Pompeii of the South Seas. The agent of destruction in this case seems to have been a mighty rush of steam; and so widespread was its influence, that simultaneous shocks of earthquake were distinctly felt on the adjacent isles of Maui, Lanai, and Molokai.

I should only weary you were I to relate in detail all the capricious freaks by which the mountain-goddess has vexed the Hawaiians in later years.

It is only about two years since she had her last grand outburst. On the 14th February 1877, an immense volume of smoke burst from the summit of Mauna Loa, and rose to a height estimated at 16,000 feet, darkening the whole heavens for an area of upwards of a hundred square miles. With such velocity did the column of illuminated smoke shoot upwards, that it was calculated to have travelled the first 5000 feet in less than a minute. So vivid was the glory, that it was reflected by all the country for many miles, and even the roofs and spires of Hilo shone red.

Then the summit-crater Mokua-wéo-wéo overflowed, and a stream of lava poured down from on high. It was a grand sight, but it only lasted six hours; then the stream ceased to flow above-ground. Ten days later, it found vent at a distance of fifty miles, when it caused a submarine eruption in Kealakeakua Bay. Flames burst up through the sea, and jets of steam were thrown up at short intervals for the space of a mile, apparently marking the course of a newly rent fissure beneath the ocean-bed. The sea thereabouts varies from 150 to 400 feet in depth. A vessel, beholding the strange fires rising from the water at midnight, supposed them to be signals of distress, and approached to render aid. At daybreak the sailors collected a boat-load of fine fish all ready cooked. Lumps of pumice-

stone were also thrown up, and floated on the surface as long as they continued hot, but after a while they sank to the bottom. A continuation of the fissure was traced inland for about three miles, not, however, exceeding three feet in width. Near the sea and stream, the water poured down the chasm, bestowing a cooling draught on the fire-spirits.

This is a very faint sketch of the subjects which, with a thousand additions of thrilling personal interest, form the main topics of conversation at Hilo—and such are the possibilities which enter into the chances of everyday life in this strange and marvellously interesting island.[1]

[1] In chapter iv. I have spoken of the tidal wave of May 1877, and in chapter xxiii. have endeavoured to describe the awful eruption of 1880-81.

CHAPTER XII.

COAST OF HAWAII—ANCIENT HEIAU—EAST AND WEST MAUI—AN OASIS IN THE DESERT—WAIKAPU—WAILUKU—ENGLISH CHURCH—"FATHER" ALEXANDER—ACROSS THE ISTHMUS—A WET RIDE—THE LARGEST CRATER.

Chez MRS CORNWELL,
WAIKAPU VALLEY, WEST MAUI,
15*th Nov.* 1879.

YOU see I have succeeded in uprooting myself from happy, heartsome Hilo, and all its pleasant people, from whom I parted yesterday with extreme regret. I think the whole body of foreign residents came down to the wharf to bid me a last cordial *aloha* as I embarked; and truly I felt *wae* to think how little chance there is of my ever again seeing all those kind faces.

It was a wild stormy day, with heavy gusty rain all the forenoon, and such heavy surf as to make it totally impossible to land freight, which accordingly had to be left on board the steamer, in hopes of better luck on the return voyage.[1] We

[1] Which, however, proved a good deal worse than this!

had some difficulty in getting through the surf ourselves, as the breakers dashed furiously against the wharf.

Hilo is just a place where I believe that the expedient of "oiling the waves" might be turned to good practical effect, and I must try if I cannot induce the authorities there to put it to the test. We *know* that a mere leakage of oil prevents the formation of a crest on billows in mid-ocean, but whether it could allay the fury of the surf on the shore, has never yet, I think, been fairly tried.[1]

Once we were fairly on board the little coasting steamer, we found the sea very calm, and were able to admire the wonderful coast lying between Hilo and Laupahoehoe, which, as I have already mentioned, is literally seamed with deep beautiful gulches, each forming the channel of a wild mountain-torrent. To-day, after the heavy rainfall, they were all in flood; and as the majority leap into the sea over precipitous cliffs, forming fine waterfalls, the view obtained from the steamer, as it ran close inshore, was unique and very lovely. From one point I counted twenty waterfalls simultaneously in sight, and none of them could have been more than a quarter of a mile from its neighbour.

[1] See "Oiling the Waves: a Safeguard in Tempest." By C. F. Gordon Cumming. 'The Nineteenth Century,' April 1882.

A few days before I left Hilo, a stalwart Yorkshireman arrived there, on his way to Kilauea. His hosts having invited me and mine to dinner, we fraternised, on the strength of having various friends in common in the old country (chiefly the Forsters, with whom he *was* to have ascended Fuji-yama, but with whom I actually did so, just two months ago!), so that I was able to give this brother wanderer very recent tidings of his friends.

We found that our plans were laid alike for the next move, which is a long ride to the summit of Haleakala, the huge extinct volcano which forms the eastern half of the isle. So of course it naturally follows that we shall make out the expedition together.

From Hilo we were at first the only passengers, but ere long we took up the district judge and a large party of the great legal lights, who pointed out the objects of interest as we coasted Hawaii.

This morning the steamer stopped for some time at Kawaihai, a dreary-looking settlement on a most barren, desolate coast, of harsh, uncompromising lava: no foliage, save a few long-suffering and very thirsty-looking cocoa-palms; no streams, only a scorching shore, and bare red volcanic hills looking like well-baked bricks, all the redder because of the burning sun which blazed so pitilessly on land and sea.

From this point we obtained what I suppose

I must call a fine view of the three great volcanoes, so grouped as to form a triplet of domes—though in truth the use of the word domes will surely mislead you, if you allow yourself to think of an architectural dome, or such domes as those granite domes in California. These are literally much more like the jelly-fish you see lying on the shore.

Although their respective heights are—Mauna Kea, 13,950 feet; Mauna Loa, 13,760 feet; Mauna Hualalei, 8500 feet,—yet they spring from so vast a base, and ascend at slopes so gradual, as effectually to deceive the eye. Certainly Mauna Loa, which appears in the centre of the group, is distant forty miles, and Hualalei about thirty miles; but the atmosphere is so bright and clear, that you cannot believe in their distance any more than in their height. I have to school myself to admit that the subject is grand, for a more unlovable scene than that presented by these three dull curves I never beheld.

It has, however, one point of exceeding interest, archæologically—namely, an ancient *heiau*, or old heathen temple, still standing on a little hill close to the native village. How it came to escape the destruction which befell almost all the temples of Hawaii, on the downfall of idolatry, does not appear; but its survival is fortunate, as it is a visible re-

minder of a very recent past, of which scarcely a trace now remains.

Throughout Hawaii-nei there were vast platforms, built of very large stones, laid in terraces, and combining the purposes of temple and of tomb. They exactly answered to the *maraes*[1] common to those groups lying to the southward. The majority of these have disappeared, but Ellis and other travellers described many which they saw fifty years ago.

Mr Ellis gives a minute description of the *heiau* at Kawaihai, which was built by Kamehameha, the great conqueror, as a special offering to Tairi, his war-god, ere he started to invade and conquer the island of Oahu. He gives the measurements of the stone platform as 224 feet long and 100 feet wide. It was enclosed by walls 20 feet high, and 12 feet wide at the base, but gradually narrowing towards the top.

In this inner court stood the hideous wooden idols with their feather coverings, and the altars, on which were offered hogs, dogs, and human victims. Near them stood a frame of wickerwork, in the form of an obelisk, within which the priest stood whenever the king or chiefs came to consult

[1] For *maraes* of the Friendly and Society Isles, see 'A Lady's Cruise in a French Man-of-War.' By C. F. Gordon Cumming. Vol. i. p. 25, vol. ii. p. 238.

the oracle on affairs of importance. Of course he took care to return ambiguous answers to all their questions.

When war was in prospect, then diviners were called upon to sacrifice victims, and to reveal the future from signs in the moment of death, and the appearance of the entrails. For ordinary occasions the blood of pigs or of fowls sufficed, and sometimes the diviners were content to draw their auguries from simple natural phenomena, such as the appearance of rainbows, clouds passing over the sun, thunderstorms, or the flight of birds.

But if danger was imminent, human sacrifices were demanded. These were either selected from among prisoners of war, or persons who had broken the laws of *tabu*. A messenger was sent to despatch them with a club or a stone, and their bodies were not injured more than could possibly be avoided. They were then carried to the temple, stripped, and laid on their faces before the altar in the outer court.

As many as twenty victims were occasionally offered at one time, the priest presenting them to the war-god in a set form of words. If hogs were offered at the same time, they were piled upon the human bodies, at right angles, and the horrible holocaust was then left to putrefy.

Wherever Mr Ellis travelled through the isles, he

was struck by the numerous *heiaus*, many of which were still in perfect preservation, only the idols having been removed; while the ground was still strewn with bones of the victims which had been offered, up to within four years of his arrival.

He visited one at Ruapua which measured 150 by 70 feet, and was built of immense blocks of lava. Nearer the sea, he found smaller temples dedicated to Kuura and Hina, the god and goddess specially worshipped by the fisher-folk of Hawaii. A little farther he came to the *heiau* of Pakiha, measuring 270 feet by 210, which had been built eleven generations previously, in the time of Queen Keakealani. Others were pointed out to him, half hidden by pleasant clumps of trees; and then he came to one 200 feet square, enclosing a clear pool of brackish water, which was the favourite bathing-place of the great king, who reserved it for his own use.

Here and there he came on traces of the poor deposed gods. One day, walking on the sea-beach, he passed a large idol lying prostrate on the rocks, and washed by the waves. It was a hideous carving, and he asked its former votary how he could have worshipped such an object. Kamakaù replied that it was from dread of the evil that it might do to his trees, but that, as he found it could do neither good nor harm, he had thrown it away.

Leaving the coast of Hawaii, we steamed for

several hours across the channel dividing it from the isle of Maui, which is in the form of a double bottle-gourd. It has apparently been built by the action of two distinct volcanoes, whose overflowings have met and formed a wide low isthmus, connecting the two mountain-masses which form East and West Maui.

The whole of East Maui consists of one vast dome-shaped mountain, 10,000 feet high, rising in the same very gentle slope as the volcanoes on Hawaii. As seen from here, I fail to discern the slightest dent in the smooth curve of that great summit which might betray the site of the vast crater, which is the object of our pilgrimage.

West Maui, on which I now am, inspires me with a feeling of proprietorship, for the great pile of volcanic hills rising just behind this house bears the name of Mauna o Eka—the mountain of Eka![1] It does sound so strangely familiar to hear my own name uttered by Hawaiian lips!

As seen from the sea, this isle certainly presents an appearance of unmitigated and hideous barrenness. Its lava-bound shores are the very type of ghastly desolation — vast flows of the roughest, blackest lava, as hard as iron, jutting into the sea, and giving horrible suggestions of the fate which

[1] May I be forgiven for here leaving this allusion to my own family nickname?

would await any luckless vessel that might be driven on to that cruel coast. The isle itself appears to be one vast cinder-heap, with groups of small craters mingling with the black bed of ancient lava-streams, with small trace of any vegetation to soften the dreariness of the scene.

What vegetation there is, is the pale grey-green of the giant cactus — a shrub so weird and grotesque as to be well in keeping with the desolate surroundings.

I confess my heart sank when the steamer lay to off Maalea Bay, the dreariest and most repulsive-looking spot of all, and I found that we were to land on that dismal shore.

The unpromising aspect of things, however, brightened considerably when, on landing, I found kind friends waiting to welcome me, and a choice of two pleasant homes as headquarters. In such cases selection is embarrassing, and the easiest solution seemed to be to devote a day to each. So I came here first, as had been arranged for me by the kind thought of Governor Dominis (the king's brother-in-law), who is governor of Maui as well as of Oahu.

It took us about an hour to drive from Maalea to Waikapu, following the base of Mount Eka almost at the level of the isthmus, which lies outstretched before us—a dreary expanse of arid

disintegrated lava, which, however, only needs water to make it the most bountiful of soils.

By degrees we saw some indications of the beauty which the inhabitants of Maui ascribe to their beloved isle. I perceived that the mountain-mass, which seemed so shapeless, is rent by a series of deep gorges, each, I am told, a scene of bewildering beauty, both in rock-scenery and foliage. The wild waste of unproductive lava has already been partially irrigated, and the barren wilderness now yields rich fields of sugar-cane.

Truly lovely are those green canes with their tassels, at once rosy and silvery, resembling the blossom of some giant grass, and the broad leaves waving gently in the breezy sunlight. The fields are hedged with the prickly-pear, which here attains a great size, with stems upwards of a foot in diameter, and becomes a very handsome though grotesque shrub.

But it was a real surprise, on arriving here, to find myself in a house which, apart from the contrast with its surroundings, is simply a paradise—a most comfortable New England home in a lovely tropical garden—a true oasis in the wilderness of lava all around. The smooth green lawn is overshadowed by beautiful imported trees and tropical shrubs, and a group of pretty children are playing joyously among thickets of bright blossom.

The house is as pleasant as its garden—a cosy, pretty, well-ordered home. Just below it are grouped all the buildings connected with the estate —overseer's and workmen's houses, and offices.

WAILUKU, *Sunday*, 16*th*.

After breakfast, the gentlemen drove Mrs Cornwell and me to this pretty village, where they deposited us at a tiny Episcopal church, while they themselves went for a long drive. Here as elsewhere, all the population are members of the Congregational Church, so we only found a very small handful of worshippers.

After service, Mrs Cornwell brought me here, where (thanks to kind letters from friends in Honolulu) a genial welcome awaited me from Mr and Mrs Alexander and their daughter. They are a fine old couple of the early missionaries, and now hold a patriarchal position in the country, with their children filling influential positions, and grandchildren growing up. Indeed it seems to me that a very large proportion of the foreign residents of Hawaii are the descendants of the early missionaries, who, by a wise provision of the American Board, were induced to remain and settle in the isles, as centres of good influence with the people, instead of returning to America.

I have lived so long in tropical countries (no-

tably India and Ceylon), where we never see an old man or woman among the foreign residents, but only such as are fighting life's battle, in the burden and heat of the day, that the number of beautiful, hale, silvery-haired, happy old people, especially old couples, whom I have seen in these isles, impresses me more than you can perhaps understand. And besides those whose acquaintance I have had the pleasure of making, I hear of many others, so I can only infer that this climate must be extraordinarily healthy.

Doubtless, too, much is due to the singularly peaceful, orderly conditions of life which have prevailed throughout the group for at least the last half-century, and perhaps, also, to the rigid temperance which has ever been the rule of these New England teachers, who, together with all their families, have always strictly prohibited the use, not only of any sort of intoxicating drink, but even of tobacco.

My present host, "Father" Alexander, as he is commonly called, is a noble old man of about seventy-five, hale and hearty, and full of keen interest in the present, as well as in the wonderful past which he so well remembers, in these isles.

I see, however, that one subject, which on Hawaii is for ever cropping up—namely, the wayward actions of the volcano—is here utterly lack-

ing; for on Maui there is not the faintest suggestion of any living fire,—no active crater, no solfataras, no mineral or warm springs, no steam-jets. Indeed the commonly accepted theory is, that more than two thousand years have elapsed since the mighty outburst which shattered the huge mountain of Haleakala, blowing off its entire summit, as the steam might blow off the lid of a kettle.

And such a lid! For the mighty caldron in which such forces worked is about *twenty-five miles in circumference*, and forms a pit 2000 feet deep in the summit of a mountain 10,000 feet above the sea-level!

I mention this theory of a tremendous explosion as that most commonly accepted. For my own part, I do not see why the simpler idea of subsidence, as in the crater at Kilauea and elsewhere, should not prove a more likely way of accounting for the great pit.

We are anxiously watching the weather, dreading a renewal of last week's rain, which might make the ascent a total failure, and envelop the mountain in mists. To-day, however, it is cloudless, and presents a sky-line as unbroken as that of Mauna Loa, a very flat dome.

I observe, however, that the form of Haleakala varies considerably as seen from here or from the sea. From one point, as we came in, it seemed to

assume quite a conical form, and I could distinguish a number of small craters clustered on its side.

This afternoon we had a lovely walk up the Iao valley, following the course of the beautiful Wailuku valley. Being on foot, we could not go very far, and Miss Alexander says the upper valley is so exquisite that she proposes our going there to-morrow. But I am so afraid of risking the loss of this fine weather for the greater expedition, that we have decided to start to-morrow morning.

OLINDA, ON HALEAKALA,
Tuesday, 18th.

In this case, as in many others, "mair haste" has proved "worse speed," and in my eager anxiety to secure the fine weather, I certainly managed to hit off about as unsatisfactory a day as we could well have selected.

However, there is some satisfaction in making the best of adverse circumstances, and my Yorkshire comrade is a genuine Mark Tapley. He is a thorough good fellow—a man to whom all lands are familiar, as are also all forms of campaigning, from Crimean winters to Kaffrarian summers; so he has proved himself in his element in our various *pilikias*, and we have managed to extract amusement from them all.

So far, his experiences of Maui have not been delightful, as the only quarters he could find in Wailuku village were in a wretched lodging-house, where he had to share a sleeping-room with several rough men, and found very coarse fare at a poor little Chinese "restaurant,"—a fine name for a little eating-room.

Yesterday morning dawned clear and beautiful, revealing the summit of the mountain, without a cloud. Nothing could have been more promising. The governor had most kindly agreed to accompany us to whatever point we started for the ascent, just to see us off all right. He did not, however, tell me that he had already made arrangements for us to ascend by the direct route *viâ* Makawao, and sleep to-night at a lava-bubble cave near the summit of the mountain, ready for to-morrow morning's sunrise. This would unquestionably have been the best and most interesting thing to do.

Not knowing this, and having unfortunately acquired a fixed idea that we must make the ascent *viâ* Haiku, another sugar-plantation lying on the shoulder of the mountain, I voted for this route, ignorant of the fact that it was out of the direct course, and that we thereby prolonged our journey by several miles.

At Wailuku we hired a capital express team (an

express means a carriage—in this case, a very good sort of double dog-cart), and started on a drive of ten or twelve miles across the isthmus. The weather was greatly in our favour, for here the slightest breath of wind raises such clouds of blinding sand, as usually to make this part of the expedition a matter of dread. Yesterday all was dead calm—not the faintest breeze stirred; and though the heat was grilling, we knew that it was far better than if there had been even a breath of air.

Our route lay partly along the sea-beach, where great green waves rolled in in long lazy swell, and broke in booming thunder on the yellow sands, the white surf flashing as far as eye could see along the level ashore. The distant sea and hills were of a heavenly blue, while the near sand-hills were of every shade of orange and rust colour. I never saw such rich colouring in sand.

On our way, we crossed a great level plain of richest lava-soil, which hitherto has been considered useless for lack of water, but has now been taken in hand by a sugar-growing company, under the management of Mr Claus Spreckels of San Francisco.

Already they have dug great ditches, and are carrying on irrigation on a large scale; and it is confidently expected that very soon this great plain will become a vast sugar-field, in grateful response to the one precious boon of water.

There is no regular road across the isthmus of ever-shifting volcanic dust, where each day's changes obliterate the faint land-marks of those preceding it; so we followed devious cart-tracks, and meandered in somewhat erratic fashion among these desert sand-heaps, which are scarcely tinged by a poor scanty vegetation, eventually reaching the base of East Maui, when we practically commenced the ascent of Haleakala, and ere long came to Heiku, the flourishing plantation of Mr S. T. Alexander. He kindly lent us a native to act as guide to the summit, and also committed to our care the key of this, his pleasant summer home on the mountain, which now, however, is closed for the winter months, during which the family adjourn to their more substantial home, at a considerably lower level; so we are here camping in the deserted house.

At Heiku we found a native with horses for hire, and a store where we were able to lay in a stock of provisions. Governor Dominis lent us his native servant, in case a second guide should prove useful—then he himself drove off to await our descent at Makawao.

The sky had become overcast, and dark lowering clouds told of the coming rainstorm. Indeed heavy drops were falling before we started. However, there was nothing for it but to push on and

make the best of it. Soon the rain fell in torrents. The roads were so heavy and so slippery that the horses could make no way. The mountain-track before us looked unspeakably dismal and uninviting, and all the great plain below us was utterly blotted out. Nothing was to be seen but one broad sheet of grey mist and rain. The poor horses, heavily weighted, slithered and slid on a track which had turned to greasy mud, and down which the rain rushed, in rivulets bewildering to behold.

In truth we were a company of sorry pilgrims, bedraggled and dripping, when we arrived here after sunset, and felt our way in the dusk to unlock the door. Our two Hawaiian attendants proved very willing and cheery; and as we happily found a store of dry wood, they quickly bestirred themselves to kindle fires, at which we all commenced the slow process of drying our saturated garments, a task which occupied us till midnight.

Having received permission to use whatever we could find in the house in the way of crockery or bedding, I rummaged till, in one of the rooms, I discovered a chest in which were stored some pillows and wraps, which we divided; and presently all four appeared in extemporised garments, which gave our own clothes a better chance of being fit to wear next day. For myself, I happily discovered a table-cloth, which, with a tolerably dry shawl

and jacket, made up quite a respectable fancy-dress!

My comrade's campaigning experiences proved invaluable: he encouraged the men, showed them what to do, and never forgot his part of Mark Tapley. So good an example is never lost; so we were all quite cheery, especially when "creature comfort" in the form of hot supper was ready.

But all this was a bad preparation for the early start, which is one of the essentials in ascending this mountain, where, soon after sunset, mists are apt to arise which blot out the whole landscape and fill the great crater. For this reason, the wiser travellers are those who, ascending from Makawao, make their arrangements for a night of camping out, which means sleeping in a large lava-bubble, which forms a curious cave within a mile of the summit.

Those who prefer starting from Olinda, endeavour to be in the saddle by about two o'clock in the morning, so as to reach the summit before sunrise. We were, in any case, far too weary to dream of such a thing. Indeed the pitiless rain never stopped. All night long it poured incessantly, and we half expected to be detained here for another day. Indeed, for my own part, I felt as if all energy had been washed out of me, having a cat-like abhorrence of getting wet.

So we made no effort to be early in the morning, and were rather taken by surprise when, at 6 A.M., it suddenly cleared. Of course, before we could breakfast and get the horses ready, a precious hour had flown.

Fortunately the ascent is so gradual that there is not the slightest difficulty in riding the whole way. We passed a belt of very pretty timber, and then rode over immense fields of wild strawberries, which unluckily are not in season. *Ohelos* and Cape gooseberries also abound; and even where the vegetation is scantiest, several very pretty kinds of fern nestle among the crumbling lava-rocks.

Three hours' steady ascent brought us to the lava-bubble, where we saw evident traces of previous camping-parties. From this point one of the natives diverged, to fill our water-bottle at a good fresh-water spring a little farther along the mountain-side. There are also two good springs in the actual bed of the crater.

Two months ago I drank similarly sparkling water from the holy spring on the summit of Fuji-yama, 4000 feet higher than this "House of the Sun." I wonder how it is that water-springs so often exist on dormant volcanoes?[1]

One mile more brought us to the summit, and

[1] Many of the small craters in Auvergne contain pools of water fed by living springs.

dismounting, we picked our way among masses of volcanic rock and cinders. A few steps brought us to the edge of the gigantic pit-crater—a tremendous abyss. But alas, alas! we were too late. According to their almost invariable habit, clouds had formed in the crater soon after sunrise, and now they had already floated almost up to the level on which we stood.

I can only compare this vast crater to a cyclopean pie-dish which we knew to be 2000 feet in depth; but as our pie-dish was apparently filled to the very brim with the lightest, whitest flummery, we could only guess at what lay far below in the bed of the crater.

It certainly was very aggravating! Nothing was visible save the great rock-wall, on the brink of which we stood, and which extends in a vast sweeping circle, variously stated to be from twenty-five to thirty miles in circumference, only broken in two places, known as the Koolau and the Kaupo gaps, on the east and north sides, through which, in ages of which no tradition exists, the lava-floods must have poured down to the sea in appalling rivers, one of which must have been fully three miles in width. Imagine this, rushing down from a height of 10,000 feet! The vast caldron which once contained this lake of liquid lava is of a long oval form, upwards of seven miles in length,

by three in width, having an area of about sixteen miles. The base of the mountain has a radius of about ninety miles.

Far beyond the near circle of rock, we could see outspread, in clear delicate colouring, a faint vision of cultivated lands lying along the seaboard; and still farther, the familiar forms of Mauna Kea and Mauna Loa rose pale and blue from the deeper blue of the ocean.

It was a strange and beautiful scene, though not that which we were so anxious to behold. However, we brought patience to bear, and sat down to watch for a break. At first matters grew worse instead of better, for the dense clouds of white mist came rolling up from the depths, till they veiled even the near crags, and we ourselves were enfolded in its cold damp wreaths.

Hour after hour we sat patiently watching that fleecy white sea curling and writhing, now opening a break, which gave us a glimpse of the far-distant mountains of Hawaii, and then of the coast 10,000 feet below us. Anon, as if a curtain were drawn aside, we had a momentary glimpse of a group of the cones, or rather, secondary craters, rising from the bed of the great crater, which lay outspread at a depth of nearly half a mile below us—one at least of these cones attaining a height of 750 feet (200 feet higher than Salisbury Crags at Edinburgh).

There are sixteen of these minor craters, which elsewhere would pass as average hills, but which here seem mere hillocks. Most of them are of very red lava—a baked-looking, fiery red, strangely in contrast with the blue-grey lava which forms the bed of the crater, and which seems to resemble the lava-bed of Kilauea. Here and there a faint tinge of green suggests vegetation ; and indeed we knew that the tiny dots, which we could just discern to be some sort of shrub, were really quite large trees, and we had been told that at the farther side there is fair camping-ground in the actual bed of the crater, beside the two springs of fresh water.

At certain spots on the inner slopes of the great crater there is found a beautiful plant, known as the silver sword, which has the appearance of being made of finely wrought frosted silver, and bears a blossom like a purple sun-flower. The plants are so beautiful that the foreign residents treasure them as household decorations. Why they should be called *swords* is not apparent, inasmuch as in general form they somewhat resemble very large well-grown cabbages, built up of layers of delicately refined silver leaves. They are very partial in their growth, and are only found at a particular level, a short distance below the summit.

I had brought my very largest sketching-block (18 × 30 inches), that I might secure a careful draw-

ing of the largest known crater in the world, but for hours my hopes seemed doomed to disappointment. All I could do was to sit with the paper before me, and having outlined the near cliffs, fill in the rest of the scene piecemeal as it revealed itself, keeping a sheet of waterproof thrown over my paper, to protect it in a measure from the soaking mist.

Thus patiently I watched for six long hours, and it was not till just before the moment on which we had decided as that when we positively must descend, that a kindly breeze sprang up, stirred the cloud-masses, and wafted them upward, leaving the crater almost clear. Scant time remained for working in details; but I made the most of it, and succeeded in carrying away a very fair reminder of this unique scene.[1]

It seems to me to bear a striking resemblance to the diagrams by which astronomers illustrate the vast craters of the moon—though they tell us that earth has no craters to compare in size with their lunar kindred, which are of all heights and depths

[1] A few days later, in Honolulu, I had the pleasure of showing this sketch to Professor W. D. Alexander, who knows this place better than any man living, having camped in the crater itself for a considerable period, while preparing his admirable map of it. I was much gratified by his kind expression of pleasure at the accuracy of the drawing made under such difficulties, and from which the illustration here given is photographed.

and sizes, one having been shown to be 123 miles in diameter, while the annular crater of another is said to be 23,000 feet deep.

Having thus delayed till the last moment, we had to hurry on our downward road, the track being very rough, and unsafe after dark. Happily we made such "good time" that we reached the strawberry-fields before sunset, and were able to cross them at a hard canter, and so reached Olinda by dark.

Now it is high time for sleep, and I need scarcely tell you I am pretty well tired; but I thought you would like to receive a letter from this mountain, and besides, it is easier to write while my ideas are fresh.

Wednesday, 19th.

This is a glorious cloudless morning. We look down on the isthmus of yellow sand, washed on either side by the blue Pacific, and beyond it, in faint delicate colouring, we see the hills of West Maui, with every cleft of the Eka mountains clearly defined. Not the faintest veil of mist rests on Haleakala, which to-day is a true House of the Sun. Why, oh why did I hurry away from Wailuku, only to come in for such rain, in place of waiting for this morning of exquisite loveliness?

I feel half inclined to go up again, but the gov-

ernor is waiting for us at Makawao, and would think we had come to grief.

Mark Tapley is resolved to leave the house in faultless order; so he is not only superintending, but actively helping in house-cleaning, knife-cleaning, washing crockery, and generally producing a condition of apple-pie order. On the principle of never doing anything myself that any one else will do for me, I am looking on admiringly, and am doing nothing! When this work is finished, we commence the descent; meanwhile, I must spend the last minutes sitting in the verandah "glowerin' frae me." And, in truth, the scene is so calm and beautiful that I am loath to leave it.

NOTE.

ON LUNAR CRATERS.

Of the incalculable multitude of craters on the moon's surface, a large number are individually known by name, and are as familiar to our astronomers as are earth's craters to our geologists.

Messrs Nasmyth and Carpenter, of the Royal Observatory, Greenwich, give us a list of *two hundred and thirty* of the largest lunar craters thus distinguished by name.

Foremost in size ranks Schickard, a vast annular crater of 123 miles in diameter, within which lie sixteen secondary craters, while all around lie multitudes of small craters,

so closely crowded together as to be suggestive of the bubbles in froth. These froth-craters are collectively described as minute, though the majority are fully a mile in diameter—*i.e.*, as large as the crater on the summit of Fuji-yama in Japan.

One great crater, known as Ptolemy, is 86 miles in diameter; Petavius is 78 miles in diameter; and Alphousis, 70 miles.

Copernicus, which is one of the most beautiful lunar craters, is *only* 46 miles in diameter, but its boundary-wall forms a vast rampart 12,000 feet in depth, while from its centre rises a magnificent group of cones, three of which attain a height of 2400 feet. The spur-ridges of this great mountain are clearly defined for fully 100 miles in every direction, and all round the great central crater there lie *myriads* of minute, but perfectly formed, craters.

Gassendi is a crater about 54 miles in diameter. Its wall is about 9600 feet in depth, and the conical mountains in the centre are nearly 7000 feet in height.

Eudoxus is 35 miles in diameter, and 11,000 feet deep. Aristotle is 48 miles in diameter, and 10,000 feet deep.

One magnificent group of three craters are known as Theophilus, Cyrillus, and Catharina. They are respectively 64, 60, and 65 miles in diameter, and from 13,000 to 16,000 feet in depth. Two of these have a central cone respectively 5200 and 5800 feet in height.

Plato has a diameter of 70 miles, and its jagged crater-wall varies in depth from 4000 to 8000 feet. Tycho is 54 miles in diameter, and upwards of 16,000 feet deep. From its centre rises a grand cone 5000 feet high.

In a very curious lunar district lies the great crater known as Walter. Its rampart is 70 miles in diameter, and within this circumference lie twenty small craters. It forms one of a group of upwards of two hundred craters

of all dimensions, the very smallest of which is considerably larger than Vesuvius. These overlap one another, showing the course of successive eruptions, and all combine to produce what must be the wildest possible volcanic scenery.

It would not, however, be a tempting country to explore, as it is seamed in many places by awful chasms and fissures of from 50 to 100 miles in length, about a mile in width, and of incalculable depth. In one lunar district there is an enormous straight cliff 60 miles in length, and from 1000 to 2000 feet high, so the lunar explorer would not find his walk very easy.

Some of the mountains rise to 20,000 feet in height, notably the range known as the Apennines, which is about 450 miles in extent.

A remarkable difference between lunar and terrestrial craters lies in the extraordinary depth of the former. The craters of earth are generally mere pits in proportion to the mountain on which they are situated. Even great Haleakala, which is 2000 feet in depth, lies on the summit of a mountain 14,000 feet in height. But the lunar craters are like deep wells sunk into the moon's surface, while the enclosing mountain-rampart forms a comparatively low wall rising from the general level.

CHAPTER XIII.

SUGAR-MAKING—SUGAR-GROWING—LABOUR—RICE—OPIUM—THE IAO VALLEY—NAMES OF RIVERS—HAWAIIAN NAMES.

THE OLD MISSION HOUSE, WAILUKU,
WEST MAUI, *November 20th.*

IT has been pouring all day; but being safely and happily housed in this peaceful, genial home, the rain matters little. Indeed I have profited by a downright wet day, to work up my study of Haleakala ere it became less vivid in my memory.

We just managed a run to the house of near neighbours, "Father" and Mrs Bailey (members of the early mission—another of Hawaii's fine old couples), where I was greatly interested in seeing some most faithful oil-paintings of Haleakala and other scenes in these isles, the handiwork of Father Bailey, who only late in life was able to devote any portion of his time to the art he loves.

I must take up my parable where I left off—namely, at Olinda. Looking down from that high

ground, we gained a good general idea of this side of the great mountain, whose broad flanks are divided into eight districts, the cultivation of which varies greatly according to soil; and you can imagine that where the base of a mountain has a circumference of upwards of 500 miles, there is some room for variety.

Two of these districts are regions of rock and forest, where only wild cattle roam. One is good pasture-land, suitable for grazing; while the remaining five have rich fertile soil, well suited for the growth of sugar, tobacco, and other crops.

The district of Makawao, for which we were bound, covers 100,000 acres. Its climate is considered perfect; its soil only needs systematic irrigation in order to produce all manner of crops; so it is considered to be a planter's paradise.

A very beautiful three hours' ride brought us to Mr Sharratt's plantation of Makawao, where he and the governor were expecting us. Here we found several gentlemen, Americans and Germans, who are learning the mysteries of sugar in all its branches; and after luncheon, Mr Sharratt took me all over his sugar-mills, which are now in full work, most patiently explaining every detail of the process, which is the one all-absorbing interest throughout this region.

I will give you a sketch of the mysteries where-

by the canes which wave their green leaves and rosy silken tassels in the morning sun, can, in a few hours, be reduced to fine crystallised sugar, ready to sweeten your evening cup of tea.

The canes are cut just above the roots, which are left in the earth, and from which spring healthy young shoots. These are called rattoon cane, and form the crop of the second year.

The canes having been stripped of their leaves, are brought to the crushing-mills as soon as possible, as they deteriorate if left to dry. For this purpose flumes (*i.e.*, wooden aqueducts) are erected so as to connect the higher sugar-fields with the mill, and in these the canes are floated down, for perhaps several miles — an immense saving of labour.

Arrived at their destination, they are thrown on to a traversing platform, which ensnares them between three large cylinders, which form the crushing-mill. These, being worked by an engine, revolve ceaselessly, crushing the cane, which passes out on the other side, reduced to a flat strip of dry fibre; while the saccharine juice, which is of a pale-green colour, is received in a tank below, whence it is transferred to the clarifiers to be boiled and slaked with lime, in order to correct its natural acidity. Afterwards it passes through many stages of preparation.

First it is run into great metal pans, called the clearing-pans, several of which stand in a row, and the fluid is ladled from one to the other, each hotter than the last, as it comes nearer to the furnace. When it enters the first pan, it is an offensive-looking turbid fluid, with a very unpleasant smell. In each stage of its boiling in these pans, a horrid-looking scum is carefully skimmed off. So it becomes gradually clearer as it reaches the pan nearest to the furnace, where it is made to boil furiously, till all the remaining scum has come to the surface and been skimmed.

The syrup is next transferred to the concentrating-pans, in which it is boiled and skimmed till it becomes smooth and clean, but is of a warm brown colour, still giving off a little reddish scum.

After this it is drawn off into the vacuum-pans, in which it is boiled *in vacuo*. By this time it resembles coarse treacle. It is then passed into the mixing-troughs.

At this stage the person in charge of the boiling occasionally spoons out a few drops to test the condition of the brew. Minute crystals have now formed, which give the syrup a thickened appearance. It is now run into heated tanks, in order that it may granulate. This is the first crystallisation, and gives the finest sugar.

A large quantity of molasses, however, remains,

and this is now boiled for a second time in the vacuum-pan, and forms sugar of the second quality. But there still remains a residuum of syrup, which is once more returned to the vacuum-pan, and undergoes a third boiling, again yielding some sugar, but a smaller quantity, and of inferior quality. The second boiling takes longer than the first, and the third takes longest of all, and gives the smallest return.

The syrup is now transferred from the granulating-tanks to the centrifugals, which are perforated cylinders, or rather drums made of copper gauze. These are fixed in a strong iron tank, and when set in motion, rotate with such velocity that it is impossible to detect any movement whatever. It is calculated that they make upwards of a thousand revolutions in a minute, with the speedy result that the dark treacle is transformed into dry crystallised sugar, which remains in the drum all ready for household use, while the coarser molasses escape and are drained off. This is really a very beautiful process, and seems to savour of magic.

The manufacture of rum being illegal, there is no further use for the refuse-syrup.

After spending an hour or two in this atmosphere of sugar, and admiring the fine cattle employed about the works, and the beautiful green sugar-fields of this plantation, I looked with keener

interest on the desolate expanse of sand and dust, so long deemed only a useless nuisance, but which already shows patches of bright green on the new sugar-lands.

It was a great inspiration when first a far-sighted American determined to find means whereby to irrigate this wide isthmus of volcanic dust, which only needed the magic presence of water to be transformed into the richest and most fertile soil. Many and great were the difficulties to be surmounted. Certainly there were streams rushing down various gulches on the flank of Haleakala, but it involved difficult engineering to divert these from their natural seaward course, and lead them through the forests, and across the countless ravines which seam the mountain-side. This was accomplished by the erection of great flumes—*i.e.*, wooden aqueducts — and in some places the water is led across these through very large pipes; while, at the Maliko gulch, it was found best to carry the pipes to the bottom, lead them across the ravine, a distance of five hundred yards, and up the other side.

The water-pressure here is so enormous, that the ingenuity of the engineer was taxed to the utmost to find means of strengthening the pipes, and enabling them to resist the frolics of the Water-Kelpies in times of sudden flood; but so well has the work been accomplished, that a water-conduit,

thirty miles in length, has been constructed, and, by an almost imperceptible grade, nowhere exceeding twelve feet in a mile, the precious fertilising streams are now carried to bring drink to the thirsty soil, and wealth to the planters.

I am told that the irrigation-works in this district have involved an outlay of upwards of £20,000, but that the result has already proved the wisdom of the expenditure. Not only have the plantations on the mountain-side profited largely, but already a green expanse of three thousand acres of rich sugar-cane has sprung up in the midst of the wilderness of red dust. Two large mills are about to be constructed, that the cane may be crushed on the spot; and a tramway has already been laid from Wailuku, on which run trolleys, laden with produce. This is the first railway of the Hawaiian kingdom!

I believe that scientific analysis has proved that the extreme fertility of the pulverised lava, which forms the soil of these isles, is due to the presence of a triple proportion of phosphates and nitrogen, to that ordinarily found. To the same cause is ascribed its durability; and even when, after yielding many successive crops, the generous soil shows symptoms of exhaustion, it only needs to be sprinkled with the potash contained in the ashes of burnt weeds and refuse-cane to become fertile

as ever. The remedy lies ready for use, as the cane passes from the crushing-mill in the form of dried fibre, and becomes the natural fuel of the plantations, or manure of the fields.

Another advantage of the volcanic soil is its good natural drainage. Add to this a genial climate, tolerably warm, neither too dry nor too moist, and varying little, though the seasons may nominally pass from summer to winter, and you have the best possible conditions for sugar-growing.

The cane appears to have been indigenous in this group, Captain Cook having found it growing wild in several places, large and of good quality. But all the best varieties have now been introduced from other sugar-growing countries, some with golden cane, others ruddy, some pale green, and some of a rich brown colour. Different canes are found to suit different soils and different altitudes, so that each planter learns by experience to which variety he should give the preference.

Already upwards of seventy sugar-plantations are scattered throughout the group, their returns being reckoned at from three to five tons of sugar to the acre. This sells in San Francisco at an average of £25 per ton, which, after deducting all commercial expenses, is reckoned at £22, the outlay for cultivation further reducing the planter's net profit to about £18. But in the following

season he may look for a volunteer crop of rattoon cane, which springs up of its own free will from the roots of last year's growth; and meanwhile he has planted fresh acres with the tops cut from the first canes: and so, year by year, he may enlarge his borders and find his revenue increasing fifty-fold.

Under such favourable circumstances you will not wonder at the rapid extension of sugar-growing in Hawaii. Looking back to the year 1860, I find the export of sugar quoted at 1,144,271 lb. In 1877 it had increased to 25,575,965 lb.; while in 1879 it rose to 49,020,972 lb., almost all of which found its way to San Francisco.

Since then the increase has gone on steadily, almost all the raw sugar required for the Pacific Coast States being imported from Hawaii, and refined in San Francisco, which, in the year 1880, absorbed 64,000,000 lb., and in 1881 upwards of 88,000,000 lb., of island sugar.

Of course the chief secret of this rapid advance lies in the fact of America having agreed to the long-talked-of reciprocity treaty, whereby "muscovado, brown, and all other unrefined sugar, commonly known as 'Sandwich Island sugar,' syrup of sugar-cane, melado and molasses," are now admitted free of duty from the Hawaiian islands to the United States; consequently the estates which hitherto have scarcely been able to pay their way,

are in a fair way to become immensely remunerative. The treaty, which was considered experimental, expires in 1884; but as most of the plantations on the isles are owned by Americans, there is little fear of its not being renewed; and a gigantic new sugar-refinery has just been completed in San Francisco to meet the increasing supply. This one factory expects annually to produce 225,000,000 lb. of refined sugar.

Lest, however, the planters should be too much elated by their prosperity, certain humble foes, in the form of rats and worms, contrive to give serious trouble by their ravages. With the former I have great sympathy, as they have an evident appreciation of good things; but as to the wretched borer-worms, they are true messengers of Satan, who, from innate love of mischief, riddle the cane internally, so that while apparently sound, it is really a honeycomb, from which all the sweet juices have escaped.

Another drawback to the planting interests is the difficulty of obtaining labour. Various efforts have been made to supply the deficiency. The Board of Immigration, finding that the influx of Portuguese, South Sea Islanders, and even Chinese, has hitherto failed to meet the demand, now talk of importing labour from India, which would, however, involve considerable expense.

The Portuguese, who were expected to come to the relief of the planters, preferred work of other kinds, for which they found openings. Even the Chinese, who were looked to as a sure solution of the difficulty, are found very naturally to prefer engaging themselves to work with their own countrymen, who, with their usual clear-headedness, no sooner learnt that rice was to be admitted to America free of duty, than they bought up, or leased, every bit of desolate, swampy land, chiefly on the isles of Oahu and Kauai, and have transformed them into fields of rich green *paddy*. They buy or lease every corner they can get hold of which is fit for agriculture, and now grow such crops of fruit and vegetables as Hawaii had hitherto never dreamt of.

The owners of the soil make a good thing by charging exorbitant rents for land which they have hitherto considered of little or no value. But the industry and perseverance of the Chinaman find their reward. Steam rice-mills have been set up, and the rice now exported to America compares well with the finest in the market there.

Ever on the alert to seize good opportunities, the clannish Chinamen have naturally flocked to Hawaii; and whereas in 1876 there were not above fifteen hundred Chinese in the group, in 1880 they numbered upwards of twelve thousand; and natives

and Europeans alike complain that by their diligence and frugality they are gradually absorbing all classes of work.

It remains to be proved what may be the result to Hawaii of the recent jealous policy of exclusion which has led the United States Legislature to yield to the anti-Chinese howl, actually prohibiting all shipmasters, under severe penalties, from landing any Chinaman at any port in the States, for a term of ten years.

It would seem only natural that the Mongolian stream, thus diverted from California, should flow to Hawaii, whose king (during his recent visit to China) received special ovations from the Celestial rulers, in acknowledgment of the even-handed justice which he has ever extended to all their fellow-countrymen, and his cordial encouragement of their industry.

For a while there was good reason to dread that their example would lead the people of Hawaii to become opium-smokers; but happily the Legislature has checked this terrible danger with a strong hand, by totally prohibiting the importation of the pernicious drug—a noble example of judiciously sacrificed revenue. For whereas in 1875, when Chinamen were yet few in the land, the opium imported was valued at 22,516 dols., now, when they are daily increasing in number, the place of

opium, in the tables of imports, is happily marked by a blank.[1]

With regard to the question of sugar-labour and its difficulties, the great Spreckels plantation is almost entirely worked by Chinese; but many lesser plantations have had cane ruined in the field, for want of hands to care for it—while others have, from the same cause, suffered serious delay in their building and other necessary work.

Consequently the amount of sugar actually produced has for the present fallen short of the expectations formed. This, however, is considered to be merely a temporary check.[2]

By recent accounts an arrival of 3000 Chinese labourers and a considerable number of Norwegians was shortly expected; and much attention was being devoted to the introduction of labour-saving machinery, such as steam-ploughs and traction-engines, and other means for reducing the number

[1] As a matter of course, such a law is certain to be occasionally evaded; but how strictly it is enforced, may be gathered from the following extract from a Honolulu paper: "A Chinaman named Ah Leona, and who has lived in Honolulu for forty years, was arrested on Saturday last for smoking opium. He was caught in the act, and offered 26 dols. as a bribe to his captors. This not succeeding, he modestly applied to Mr Dayton to substitute another man to suffer for his wrong-doing. Failing in both cases, he testified that he was a doctor, and the opium had been presented for one of his patients. The defence also failed, and he was fined 50 dols., and sentenced to two months' imprisonment."

[2] I have thought it advisable here to give the above particulars, which have reached me during the last few months.

of hands and of cattle formerly required. The latter reduction would have the further advantage of redeeming the lands now set apart for pasture.

There are considerable points of difference in the natural advantages of the various isles, from a planter's point of view. For instance, take Hilo and all the eastern parts of the isle Hawaii, with their frequent rains, and consequent green luxuriance, and compare them with the dry, barren dust-fields of thirsty Maui. On the latter, it is requisite for the planter to water each ridge of canes at least once a-week—a slow and tedious business. On the former, artificial irrigation is altogether unnecessary, so that fewer hands are required. But then the cane cannot ripen so quickly in the warm, moist atmosphere, and may take twenty months to make as much progress as a rival field on a dry island will make in twelve when artificially irrigated. On the other hand, the cane, which ripens slowly, at a considerable elevation, acquires a greater density than that planted on lower levels, and may possibly yield double the amount of sugar.

Leaving Makawao, we started on our return drive across the isthmus, halting to eat prickly-pears, gathered and prepared by a handsome jovial young native, who skilfully lassoed the finest fruit from the upper branches, as if he had been singling

out some head of cattle from a drove. The natives are wonderfully expert in peeling this most thorny fruit, with its thick covering of both visible and microscopic barbed hooks, which no inexperienced hand dare venture to touch. Once opened, the interior is luscious and juicy, full of seeds like the guava, and of a rich magenta colour. The fruit is most agreeable when scarcely ripe.

We drove alongside of the tramway, where the trolleys employed on the new works run. The line is shortly to be extended right across the isthmus, and will be known as *the* railway of the kingdom. Already a telegraph is at work, and all the principal estates have established telephones for their own use.[1]

We were again fortunate in crossing the wide tract of dry sand in such a dead calm as to escape the usual annoyance of blinding and suffocating clouds of dust and sand. Instead of this, we had another turn of rain, which increased to a down-

[1] The large isle of Hawaii has not been slow to follow the example of the enterprising planters of Maui.

In June 1882, Mrs Severance writes: "We are making some progress in Hilo; we have a telephone line now out to the plantations. It is very delightful to talk with my sister at Onomea, and with the pleasant family circle at Pauhae. The next thing we hope for is a railroad; we think we shall see one begun during the year: then the gulches will no longer be a bugbear. There is a railroad on the other side of the island at Kohala, so that it seems a feasible thing for us."

pour before we reached Wailuku, and has, as I told you, continued ever since.

The wet outer world was, however, quickly forgotten in the cordiality of welcome back, from these new friends. I found quite a roomful of ladies assembled for "a social sewing." Hawaii is great in all such kindly social meetings, and this neighbourhood is comparatively thickly peopled with foreign residents.

NOTE.—There seems every reason to fear that the sugar-planters of Hawaii will find that their enemies, the rats, are an ever-increasing pest, involving serious loss both in the destruction of cane, and in the expenditure required in order to keep their ravages within bounds.

They may perhaps gain a useful hint from the experience of their brethren the sugar-planters of Jamaica, as recently described by a correspondent of 'The Field.' There (as indeed on all the West Indian isles) the devastation wrought by the rat-legions has been a very serious drawback to the prosperity of almost every estate, and many tracts of fertile land have been actually abandoned, owing to the impossibility of checking their inroads.

In addition to the ordinary brown and black rats (those irrepressible colonists, which take free passage to every new country where European vessels call), Jamaica has been invaded, and is now infested, by a most formidable rat ten inches in length, or twenty inches, if we include his tail.[1] So great has been the damage done by these combined foes, that it has been estimated at £100,000 per annum in Jamaica alone,—notwithstanding a considerable

[1] *Mus saccharivorus.*

saving being there effected by the use of the rat-eaten canes, for the rum-distilleries—an application of sugar which, on Hawaii, would be illegal.

In vain did the afflicted planters try every known method of battling with their sharp and sweet-toothed foes. Cats were freely introduced, but were worsted in the fray. Ferrets were next tried, but succumbed to the attacks of the chigoe-flea, which hungrily devours all imported animals.

In 1762, the omnivorous Cuban ant[1] was introduced by Thomas Raffles, and is still known to the negroes by his name. It proved a useful rat-destroyer, as does also the enormous Agua toad, which in 1844 was introduced from South America, and now makes night hideous with its hoarse loud croaking. Curiously enough, however, both the ants and the toads are now rapidly diminishing.

Although these quaint auxiliaries have steadily done their best to consume the young rats, their friendly efforts have availed little, and it has been found necessary on every estate to keep a number of professional negro rat-catchers, who, by the aid of a troop of dogs, curious basketwork traps, and various poisons, chiefly phosphoric, keep up an incessant rat-slaughter. All their toil has, however, proved ineffectual. One proprietor states that he has hitherto paid at the rate of one penny a-head for all rats killed by the rat-catchers, and that his annual expenditure under this head has been twenty thousand pence. This does not include the rats whose death has been caused by dogs or poison.

Another proprietor says he has paid about £70 a-year to the rat-catchers, and that the annual destruction of his canes has been a loss of at least £200. Other estates declare their loss to have been twenty-five per cent of the

[1] *Formica omnivora.*

entire sugar crop, and fully one-third of all corn and vegetable crops. In short, the sugar-estates of Jamaica have, till quite recently, estimated their annual losses from the rat-plague at £50,000; and all other plantations, including corn, cacao, coffee, arrowroot, cocoa-palms, and all manner of fruits and vegetables, estimated their losses at about the same figure: so that Jamaica has had to credit the invading rat-army with a destructive power equal to £100,000 per annum.

At length a powerful ally has been secured—namely, the common Indian mungoose,[1] the natural foe of rats and snakes. Its introduction was suggested early in this century, but the experiment was never tried till recent years, when several specimens were procured; but, unfortunately, they were imported from London, and having been bred in captivity, of course proved cowardly and useless.

Only ten years ago, in 1872, did it occur to Mr Espeut to introduce the mungoose direct from India. Four males and five females reached him in safety, and were turned out upon his estates. So amazing has been their fecundity, that already there is not a district on the island on which a large number of their descendants are not busily engaged in the destruction of their hereditary foes. Being excellent swimmers, they find no obstacle in streams or lagoons, but make their way in every direction.

Within a very few years of their first importation the negroes captured thousands of young mungooses, and sold them to planters in the most remote districts; and these, without exception, speak in unmeasured praise of the boon conferred on them by the introduction of their zealous rat-catchers. They now reckon their annual outlay on rat-catching at less than one-tenth of what it has been in past years. Some are even more fortunate. One large

[1] *Herpestes ichneumon.*

proprietor states that, whereas hitherto his annual expenditure for rat-catching and poison was upwards of £300, it is now absolutely *nil*, the rats having almost disappeared since the arrival of the mungoose. Another states that he formerly had annually to send as much rat-eaten sugar-cane to the rum-distillery as was equivalent to a loss of some twenty-five tons of sugar. Since the introduction of the mungoose, the distillery has received but one cart-load of spoilt cane; and the same thing has occurred on two other estates. Truly, the mungoose is entitled to a gold medal, or at least a blue ribbon, from the society for the promotion of temperance!

From other estates come reports of an annual saving of from £50 to £200. In short, the general returns of the whole island are fully £40,000 better for the good work done by this busy and unobtrusive helper.

All the mungoose asks is to be allowed to work in peace and unobserved. He makes his home in old buildings or ruined walls, and thence sallies forth to war whenever no human being is near. Like a pattern Christian, he does good by stealth, and shuns the praise of men. In fact he will not work unless he is undisturbed, so that the most sequestered estates are those which have most largely benefited by his labour; and various districts which were once under cultivation, but which for years have been totally abandoned to the all-devouring rats, have now been so effectually cleared, that they are again being planted as sugar-fields.

The mungoose further requires clean farming on the part of his human allies. He requires a clear field, where he can see all round him, and dart upon his prey; so a slovenly cultivator, who allows his land to be choked by weeds, will gain small aid from this willing helper. But where fields of maize, coffee, or cacao are kept free from

all undergrowth, there this wary sentinel will keep vigilant watch and ward.

The only plantation which defies his care is that of the cocoa-palm. Here, unfortunately, the rats flee as to a haven of refuge, knowing that they can climb the tall palms, and make their nests securely in the leafy crown, while the mungoose, being no climber, must remain below. In self-defence, the planters now protect their palms by encircling the stem with a girdle of tin, at a height of about six feet from the ground, having previously sent up a negro to examine the crown, and make sure that no rat is already there established.

Of course no good can exist without some corner of evil; and the mungoose is not so wholly absorbed in the rat-war that he neglects an occasional light repast on chickens and eggs. Indeed it may be feared that, as the rats diminish and the mungoose increases, this deliverer may be found a very rapacious ally, and may have in his turn to be treated as a foe. At present, however, his epicureanism is not a serious item, and as he only hunts by day, and does not care to approach inhabited buildings, and even stands in awe of a dog, the fowl-houses can very easily be protected.

Certain it is that at present the planters of Jamaica reverence the mungoose as their best friend and deliverer; and those of Hawaii will do well to recollect him as a ready helper, should serious need for his services arise.

Friday, 21*st*.

Once more I have to say, Alas that I should have hurried my start for Haleakala, instead of devoting the first day here to the beautiful Iao

valley, which cleaves the Eka mountains just behind this house! I fancied that anything so near could be explored any day; but I never reckoned on the possibility of floods, and no one warned me of their probability.

So, seeing that this morning was fine, I determined to ride up the valley. The voices of experience all declared that the fords would be impassable, but, as this was my last chance, we could but try. So we made a pleasant riding-party and started.

The first glimpse of the river was enough. She was "in spate," and no mistake! The horses were strong and country-bred, so we managed to get safely over the first ford. The second, however, we found to be altogether impassable, as the current was so swift, and was rolling down such great stones, that it would have been dangerous even to attempt to swim the horses, so I was most reluctantly obliged to relinquish the attempt.

Even what I did see of the valley was very lovely, but I was assured that it did not begin to be beautiful till we had passed the third ford, where vegetation seems to float in hanging mists of greenery, amid rock-castles and pinnacles of endless variety and grandeur.

I am the more sorry to have failed in this expedition, as I was anxious to see for myself whether any of the scenery in these Hawaiian isles really can

bear comparison with that of the South Seas. So far as I have seen, the character of the groups is so essentially different that it is impossible to compare them. The latter are all green tropic loveliness. The former are intensely interesting as geological and volcanic studies; but whatever fairy-like beauty of scenery and tropic verdure they possess, is so carefully hidden in these deep ravines, that only he who seeks finds.

I am struck by the name of the river here, which is the same as that at Hilo; and I have been inquiring about the meaning of the names of the rivers in general—so a lady here has just brought me in this list, which may interest you. The word *wai*, for water, is in common use throughout the Pacific, wherever the Malay element is traceable:[1]—

Waiakéa .....The broad water, or open water—either sense.
Waialeale.....Disturbed, or wavy, or rippling water.
Waialua.....Two waters.
Waianaè.....Mullet water (*i.e.*, of the anæ, or pond-mullet).
Waiáua.....Bitter water.
Waikiki.....Spouting or fountain water.
Wailua.....Pit water, as in water-holes.
Wailùku .....Water of slaughter or destruction.
Waimanálo...Brackish, unpalatable water.
Waimànu.....Bird water, or humming water—either sense.

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[1] For comparative table of Linguistic Affinities in the Pacific Group, see 'A Lady's Cruise in a French Man-of-War' (by C. F. Gordon Cumming), end of chap. xviii.

Waiméa .....Meaning not certain—may be "yellowish water," contracted from "meamea."
Wainanalíi...Water belonging to the chiefs.
Wainíha.....Rude, untamed waters.
Waiohínu.....Smooth, shining water.
Waiolàni.....Water of heaven.
Waiòli.....Singing or joyful water.
Waipìo.....Bending, or curving, or vanquished water.
Kaiwaihae ...Torn water.

To me there is a great charm in these descriptive names, and some are quite poetic.

Even the personal Hawaiian names, which are so very confusing to the unaccustomed ear, have meanings which greatly simplify them. Thus Kamehameha signifies "the lonely one;" Keo-puo-lani, "the gathering of the clouds in the heavens;" Kaui-keaouli, "floating in the blue sky;" Ka-pio-lani, "the captive of heaven." *Lani* signifies heaven (*i.e.*, the sky), and forms part of the name of many chiefs. Thus the good king Liho Liho was commonly called Iolani, and his full name was *Kalani-nui-Liho Liho*—meaning literally, "the heavens great and dark." His mother was called Keo-puo-lani. I suppose the name denoted a superior being, as in Fijian the wonderful white race were at once dubbed *papa-langi* (*i.e.*, those who have burst through the heavens).

Kekai is the salt sea. Kamapii-kai is "a child running over the sea." (He was a legendary priest much given to travelling.) Kaahumanu, "the

feather mantle" (*i.e.*, very precious). Kalakaua, "day of battle" (very appropriate to the day of this king's election to the throne). Liliha, "the fat of hogs" (a delicate compliment in a land where corpulence was a distinguishing characteristic of the nobles, who gloried in their size and weight). Ka-la-kua is "the way of the gods." Kahe-kili, "thunder."

Many were names adopted late in life in commemoration of some great event. Thus, on the death of Kamehameha, his loving daughter took the name of Ka-meha-maru, meaning "the shade of the lonely one." On the same occasion, Kalaimoku took the name of Paalua, "twice blind," meaning that the death of his favourite wife and of his king was to him as the loss of both eyes. And yet another faithful follower took the name of Auhea, meaning literally, "Where, oh where?" because of her mournful reiteration of this word while wailing for the king. Hoapili, "the steadfast friend," was so called because of his unwavering love for his royal master.

In every Hawaiian story I am invariably puzzled by the number of names beginning with K,—beginning with the successive Kamehamehas, and continuing with a real kaleidoscope of ever-shifting queens and chiefs. For instance, Kamapiikai, Kealoewa, Kapupua, Kalaniopuu, Kahekili, Kalai-

moku, Kaumualii, Keawe, Kaneonea, Kiwalao, Kecaumoku, Keoua, Keawemauhili, Kauaawe, Kaeo of kauai, Kalanikupule, Kepaniwai, Kiana, Kapaleiuku, Kaahumanu, Kekupuohe, Kameeiamoku, Keopuolani-Kapiolani, Kaikoewa, Kealiiahonui, Kamamalu, Kuakini, Kekauonohi, Kapihe, Kekuanaoa.

And so on *ad infinitum*. These and their relationship one to another form an exceedingly confusing element in Hawaiian history, as I think you will allow. So with the names of places—Kahoolawe, Kohala, Kauai, Kealakeakua, Kailua, Kawaihae, Keei, &c.

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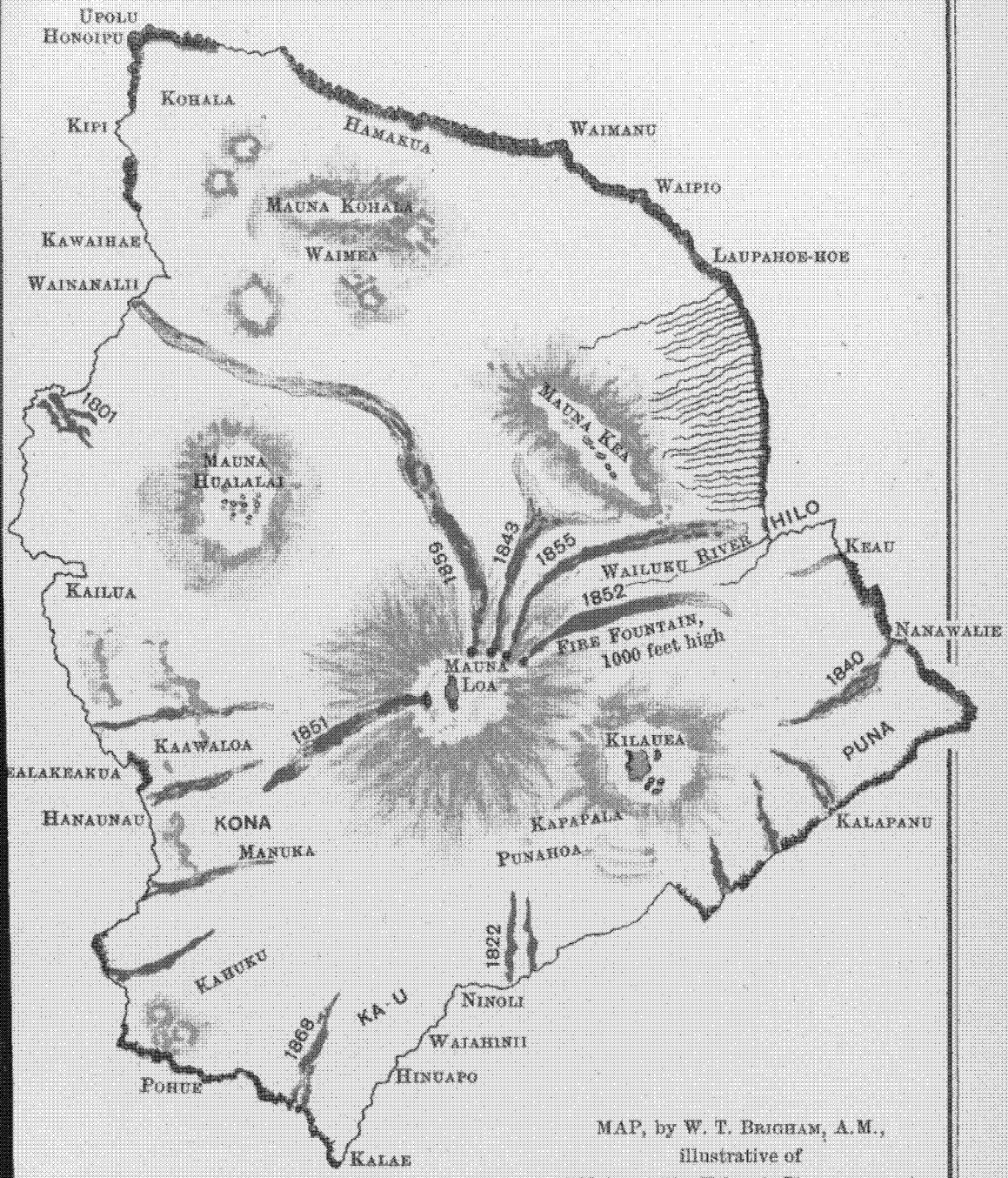

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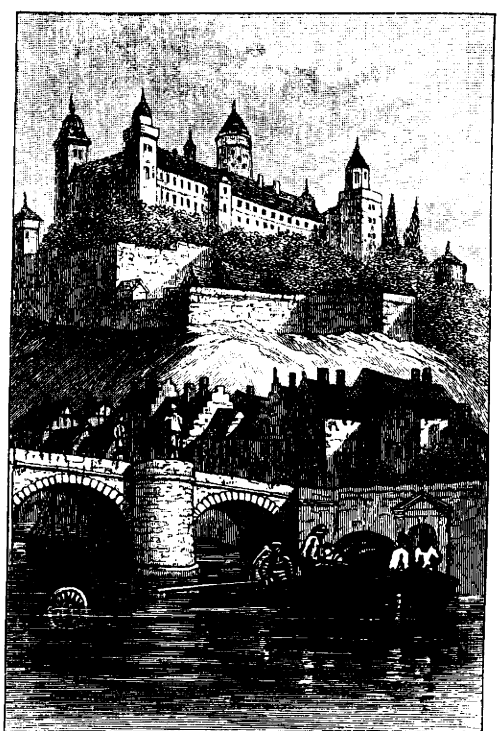

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